ENVIRONMENTAL MANAGEMENT PLAN

FOR THE PROPOSED EXPLORATION ACTIVITIES
ON EPL 8776

Erongo Region

Alliance ENVIRONMENTAL CONSULTANCY

EES EARTH ENVIRONMENTAL SERVICES

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1. INTRODUCTION

Earth Environmental Services CC (EES) **JV** Alliance Environmental Consultancy CC (AEC) (herein referred to as the consultant) has been appointed by Mr. Karel. A Esterhuizen Snr (herein referred to as the proponent) to act on their behalf in obtaining an Environmental Clearance Certificate (ECC) for the proposed industrial minerals exploration and mining activities on Exclusive Prospecting License (EPL) 8776. The project area is located approximately 20km southeast of Swakopmund in the Erongo Region.

This EMP is for the Exploration activities, a separate EMP for mining activities will be submitted with the EIA report.

1.1. Project Activities

The projected mineral exploration activities are summarized as follows:

i. Exploration activities include a desktop review of existing data as well as all past research. This is conducted in the general area to see if there are any prospective targets. This is done by purchasing high-resolution data from the Government and interpreting it as part of the first stage of exploration.

ii. Reconnaissance assessment, which includes field-based activities such as regional mapping and sampling in order to identify and validate prospective targeted areas identified during stage 1. This step is only carried out if the step1 has identified some possible targets that need to be explored further.

iii. Initial field-based activities such as widely distributed geological mapping, sampling, surveying, and maybe widely spaced trenching and drilling to verify the feasibility of any identified local target based on the regional data acquired in step 2 above. The degree or depth of exploration carried out at this stage is contingent on the discovery of viable/prospective mineral resources. Alternatively, if the specified target(s) proves to be non-variable, the license is revoked.

To assess the viability of the delineated local targets, detailed local field-based operations such as localized site-specific detailed geology mapping, trenching, bulk sample, surveying, and detailed drilling are carried out. If the detailed exploration activities yield positive results,

the exploration data will be compiled into a pre-feasibility report, and if the prefeasibility results are positive, a detailed feasibility study will be conducted on the identified site-specific area, which will include detailed site-specific drilling, bulk sampling, and laboratory testing/test mining.

ACCESS AND TRANSPORT

The location will be accessible through the C34, D1984, and C28 routes which are already existing roads, there will be no creation of tracks. Prior to any site visit, authorization from the parks department will be acquired. If the Proponent intends to continue with field-based activities, it is the Proponent's responsibility to negotiate access agreements with landowners and to ensure that all security measures to protect the land and the landowner's interests are always observed and as may be agreed upon with the landowners individually. Permission from landowners and appropriate authorities is required for any new tracks.

RESOURCES (WATER AND ELECTRICITY)

Exploration activities will need a limited supply of water which will be brought to the site. A diesel-powered generator will be used as needed for operating machinery.

ACCOMMODATION AND SUPPORTING INFRASTRUCTURE

- The exploration team is envisioned to consist of three (3) skilled workers. The team will be transported daily, no camps will be set up.
- Two portable toilets will be installed onsite and regularly serviced.
- Excavator, loader, screening plant, 1x bakkie will be used for day-to-day activities.
- Waste will be collected and deposited at the Swakopmund municipal dumpsite.
- Hydrocarbon tanks will be stored on-site i.e., petrol 100litres and diesel 1000Litres.
- All hydrocarbon tanks will be appropriately stored and bunded to hold 110% of the capacity of the tanks and all relevant permits should be applied for by the proponent as required (MME).

1.2. Purpose of the document

Earth Environmental Services (EES) JV Alliance Environmental Consultancy CC (AEC) has prepared this document as part of the Environmental Scoping and Impact Assessment for Proposed Exploration which was conducted in terms of the Environmental Management Act, 2007 (Act No 7 of 2007). This Environmental Management Plan is a live document that has been prepared based on the environmental effects identified in Environmental Scoping and Impact Assessment and should be read in conjunction with the Environmental Scoping and Impact Assessment Report.

The aim of this document is to provide management measures to address the environmental effects that have been identified in the Environmental Scoping and Impact Assessment report and to give possible mitigation measures/recommendations to address these effects. It is essential for personnel involved to fully be aware of the possible environmental issues and the means to avoid or minimize the potential impacts of activities on site.

Furthermore, the proponent fully understands the legal and policy requirements as a holder of the EPL. Impacts identified in the EIA form the basis of a set of environmental specifications that will be implemented on-site. These environmental specifications act as an agreement between the company and the Ministry of Environment, Forestry, and Tourism (MEFT).

1.3. Summary of the receiving environment

The EPL 8776 lies withing the Dorob National Park as gazette under the Nature Conservation Ordinance No.4 of 1975 on 1 December 2010. The park neighbors up with Namib-Naukluft National Park and Skeleton Coast National Park. This park has a spectacular coastal dune belt, vast gravel plains, Namibia's richest coastal area for birds, rich botanical diversity, and major ephemeral river systems and their river mouths.

Erongo region has a subtropical dry arid climate, which annually has temperatures varying from 14°C to 21°C and barely above 25°C and below 13 °C. The two main coastal towns of the Erongo Region - Swakopmund and Walvis Bay, are centrally located on the Namibian coastline in the arid Namib Desert. These arid conditions are as a result of dry descending air and the upwelling of the cold Benguela Current. The central Namib is located within a summer rainfall zone, where most rainfall (0 – 50 mm/a) is variable and localized and can be expected between the months of January through to April. The location has an elevation between 110 – 150 meters above sea level. According to IEM (2022), the area has a prevailing easterly wind, average wind speed is the is approximately 1.7 meters per second (mps), with 21.3% calm days.

The site falls within the desert biome, which is characterized by central and southern desert vegetation type. Vegetation that occurs simultaneously on the coastal saline adapt to halophytic conditions such as semi-deserts, the Inland Foggy Zone which includes the project area, contains shrub communities (*Arthaerua leubnitiziae*) and lichen fields (*Caloplaca elegantissima-Xanthoparmelia walteri*), plants like Fensteralgen are more common under transparent stones such as quartz which also has a distinctive role in the fixation of minerals and soil formation. In general, the plant diversity of the project area varies between 50 – 99 (Mendelsohn et al., 2002).

The Dorob National Park is home to the Damara tern (Sternula balaenarum) a breeding seabird which is endemic to Namibia hence considered a flagship species of the coastal area and this coastal ecosystem serves as its breeding grounds. During the site visit no animals were seen on the project area, however vertebrate animals are more common in spaces with such climatic conditions and sand texture. A possibility of unseen animals could be that

most are in hibernation. Desert conditions are suitable habitats of some reptiles (geckos and snakes) and insects (beetles), the project area however has low richness in mammal species.

According to Christelis et al, 2011 the Swakopmund area is known to be underlined by rocks of the Damara Sequence with deposits of Cenozoic superficial which is comprised by thin colluvial soils, fluvial-marine and alluvium deposits overlie the bedrock at varying depths. The project area is covered by the Damara Granite Intrusions and the Kalahari groups with dominant rock types of granite, sand, and calcrete **Error! Reference source not found.**. Areas i n the coast are highly linked with corrosion, the corrosive environment can be imputed to fog moisture, high humidity, chlorides, sulphates, and plenitude airborne salts. Swakopmund areas have high valuable construction materials especially in the Swakop riverbed this sand is used for manufacturing concreate bricks as well as in concrete.

Figures 2 to 5 provides some baseline maps of the project area.

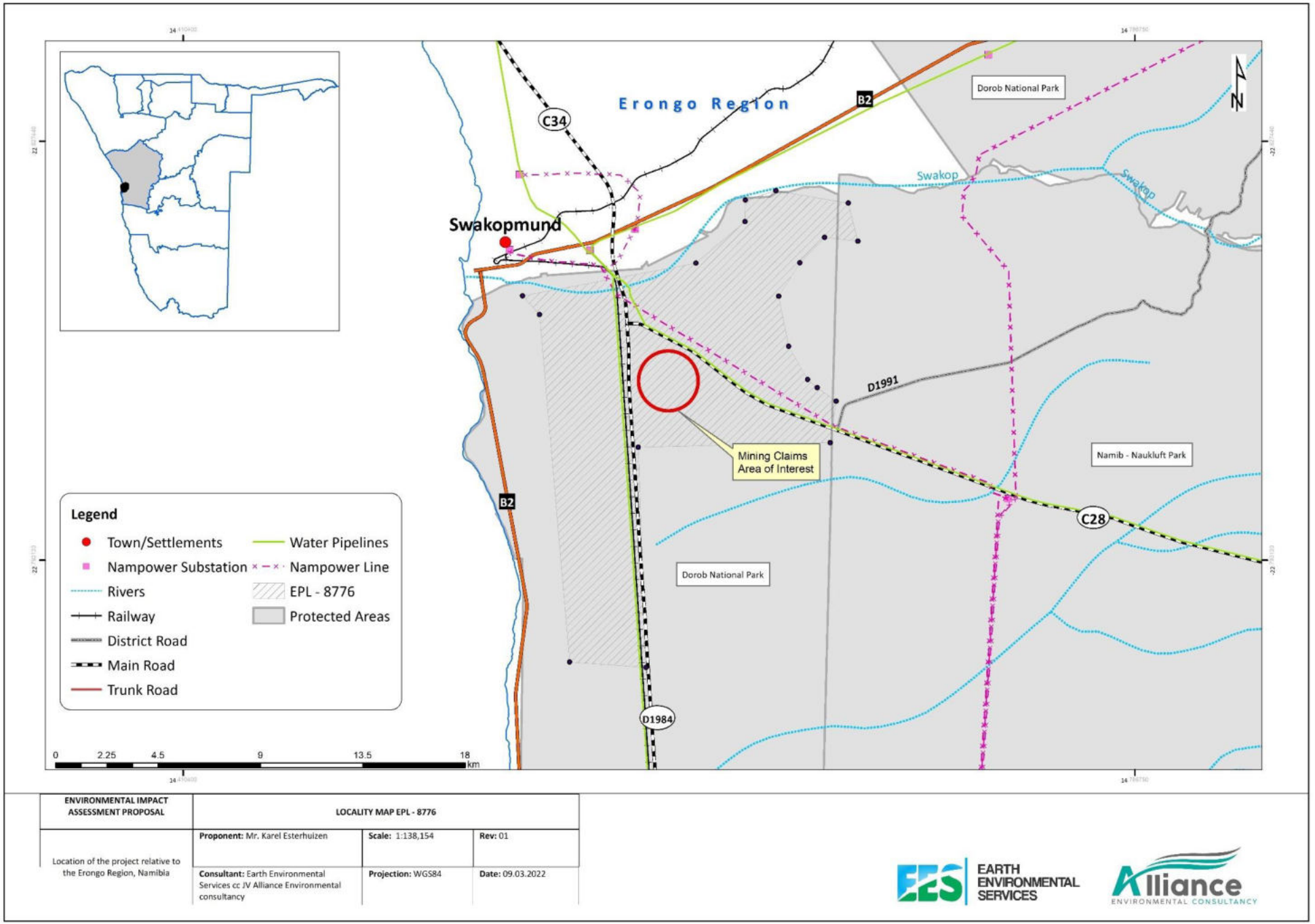

Figure 1 – Regional location of the EPL 8667 and surrounding infrastructure.

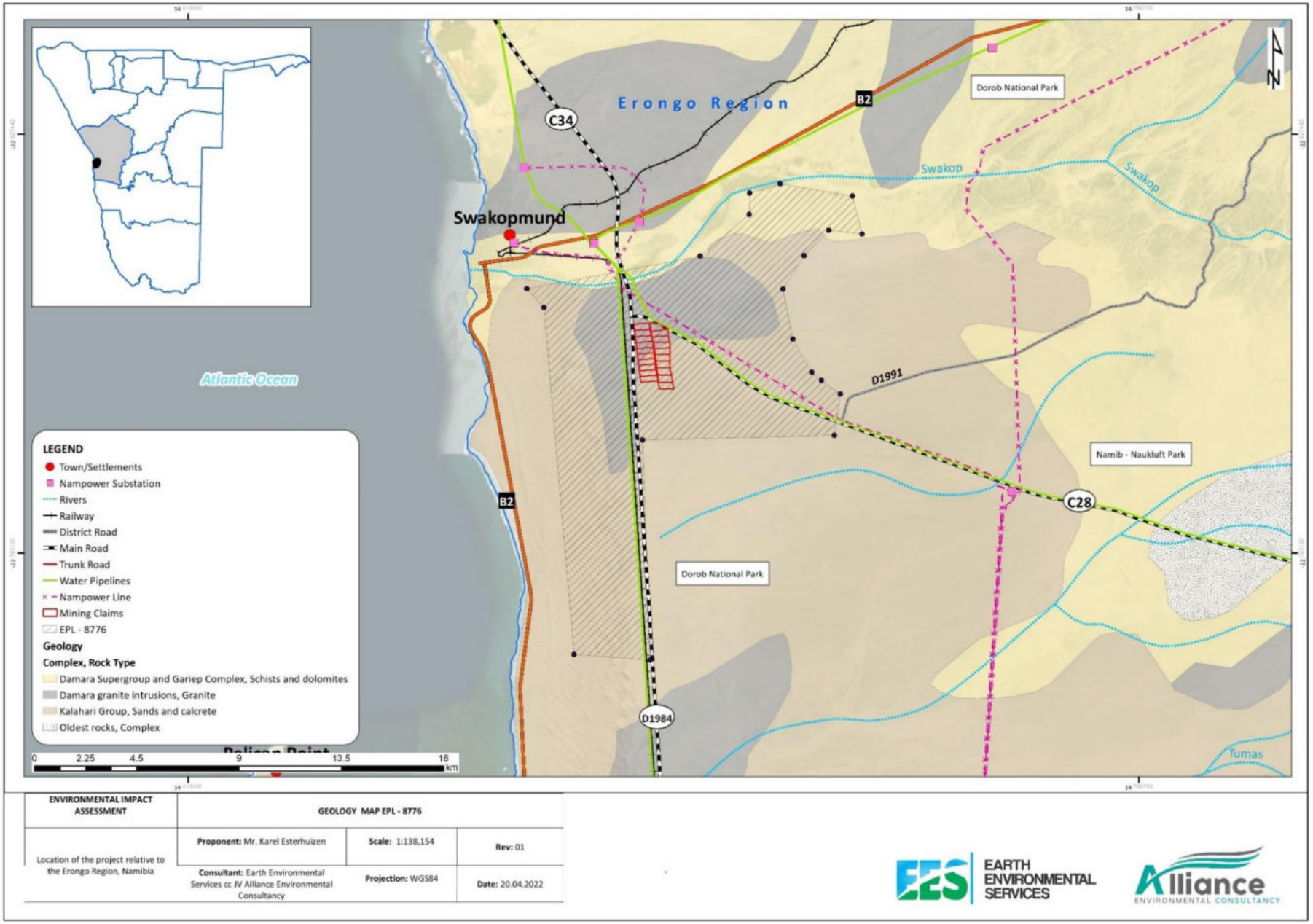

FIGURE 3 - GEOLOGY OF THE PROPOSED PROJECT AREA

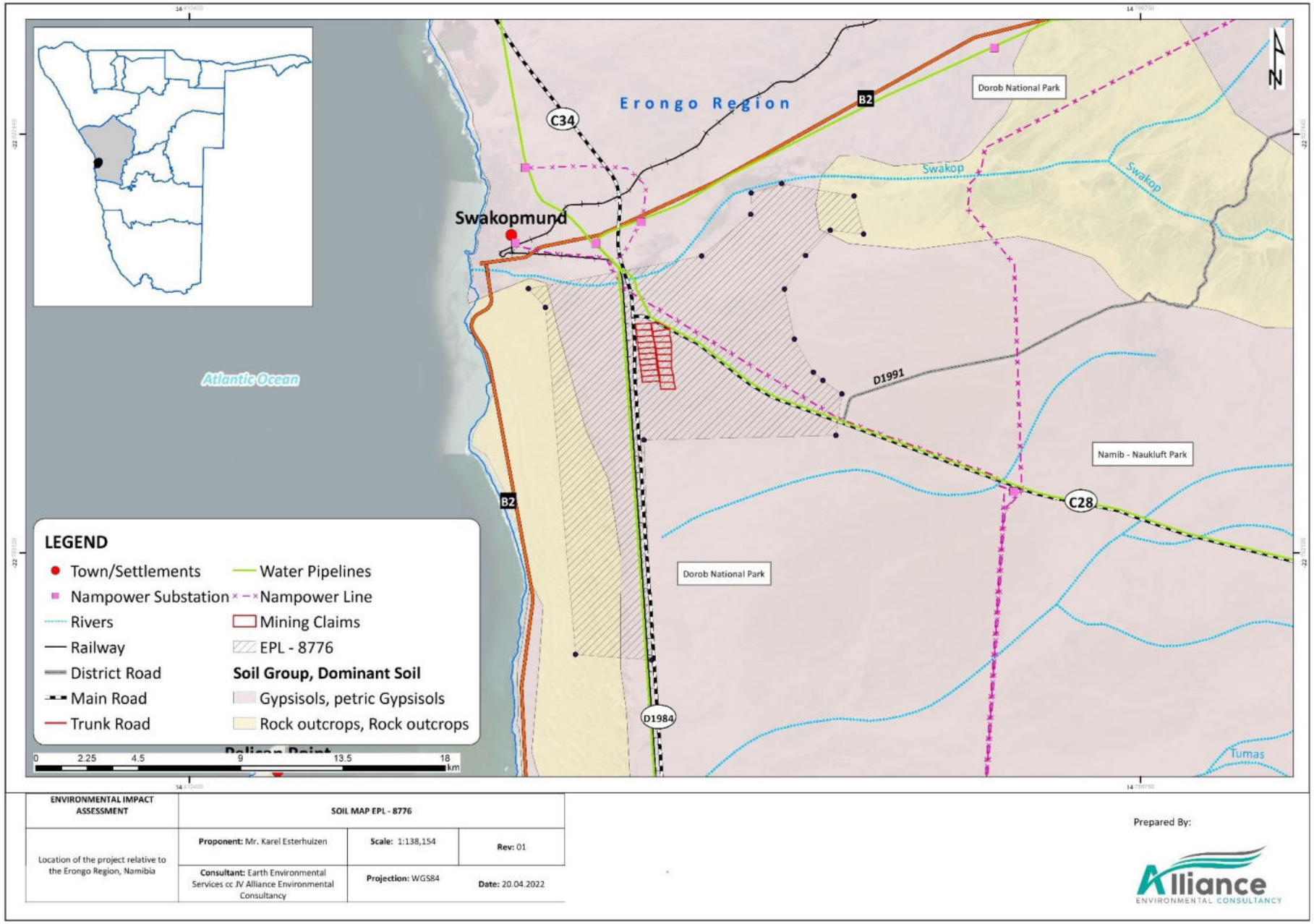

FIGURE 4 - DOMINANT SOIL TYPE SURROUNDING THE PROJECT AREA

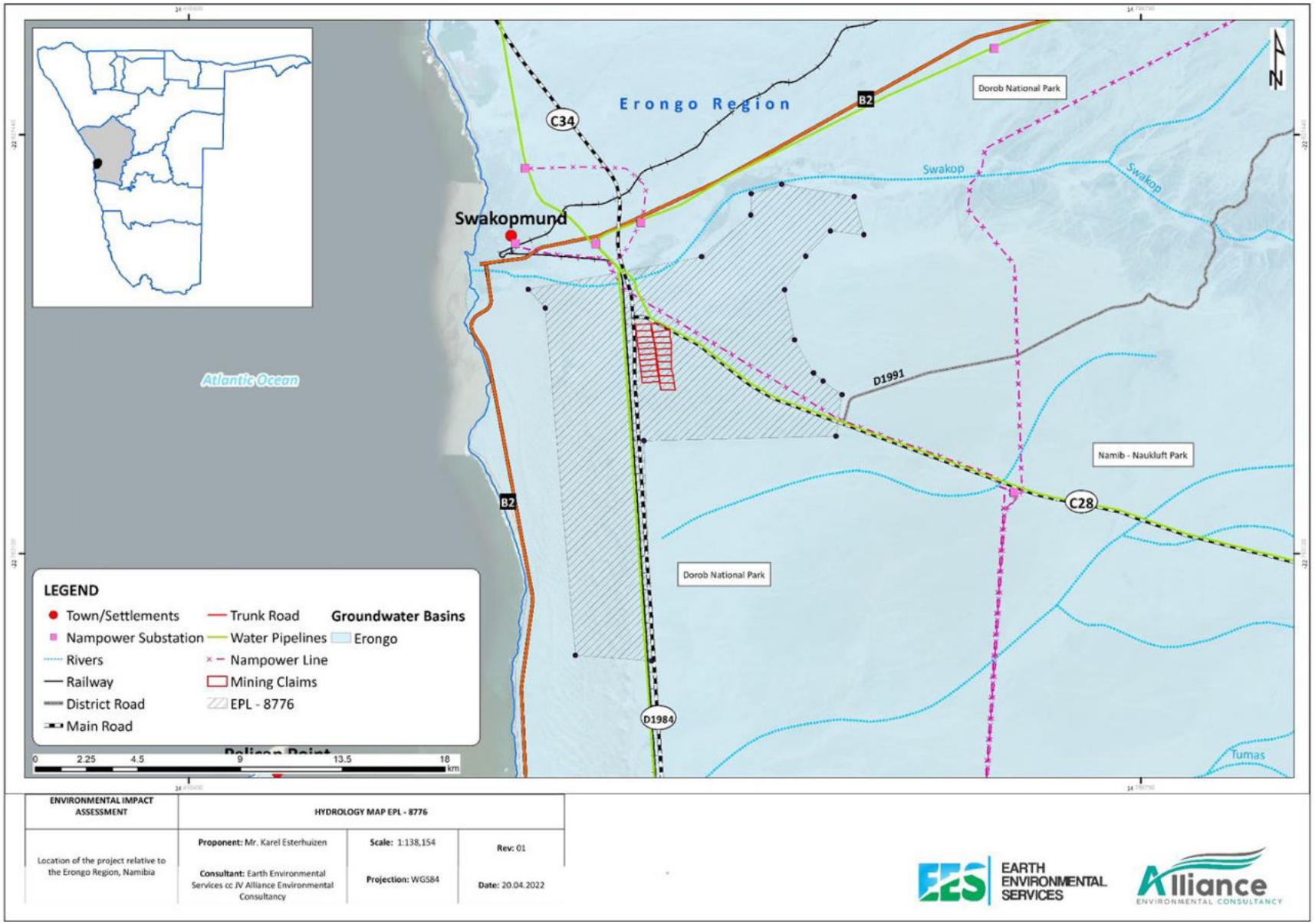

FIGURE 5 - GROUNDWATER BASINS AND HYDROLOGY OF THE PROJECT SITE

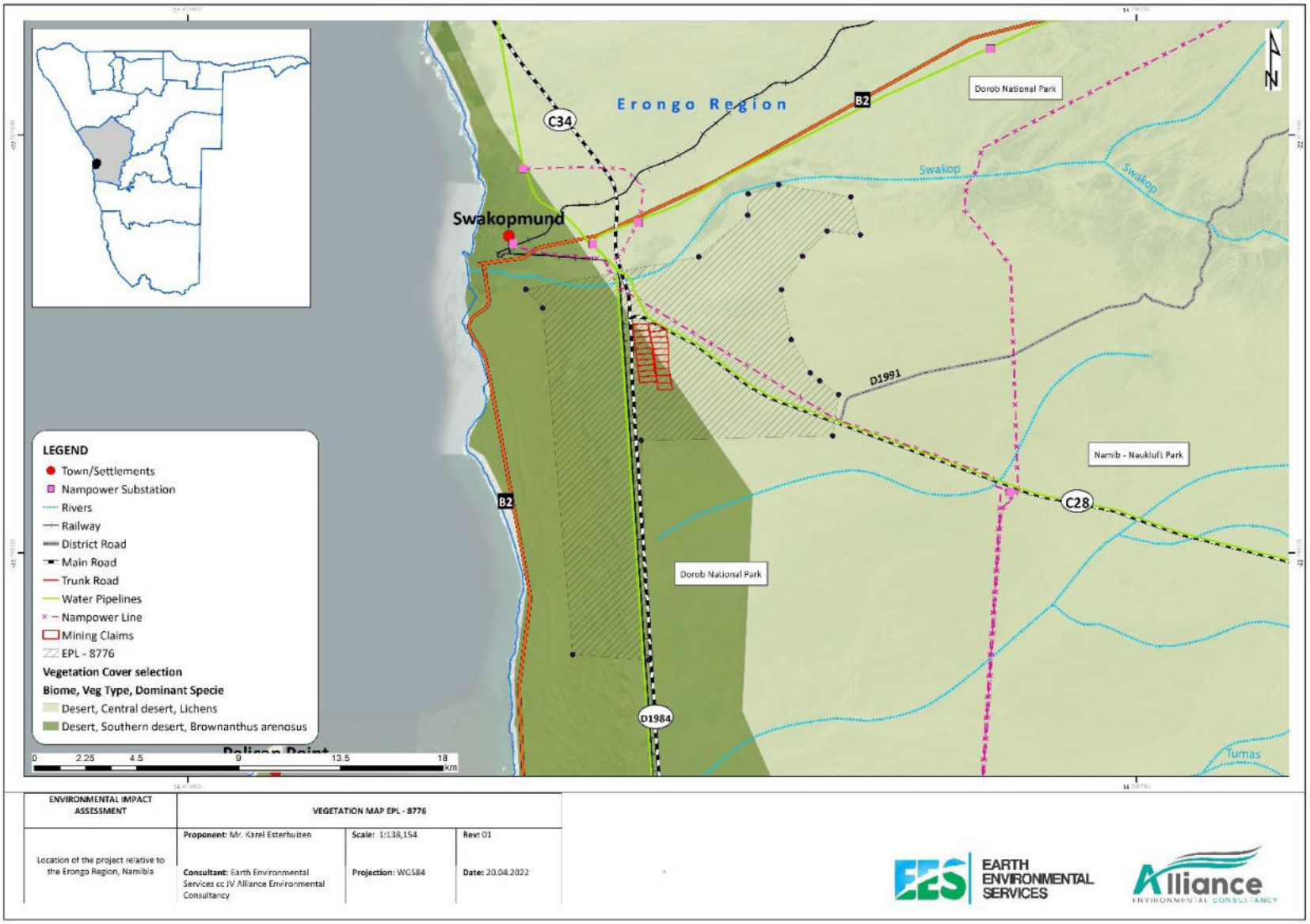

FIGURE 6 - VEGETATION OF THE PROJECT SITE

2. ENVIRONMENTAL MANAGEMENT PRINCIPLES

The Proponent will ensure that all project participants adhere to the following company goals:

i. All employees will be obliged to undertake activities in an ecologically and socially responsible way. This applies to all consultants, workers, contractors, and subcontractors, as well as transporters, visitors, and anyone else who enters the premises.
ii. Safeguard the health and safety of project personnel and the public against potential impacts of the project. This includes issues of road safety, precautions against dangers on site, potential hazards; and,
iii. Promote good relationships with the surrounding settlements and other stakeholders.
iv. Biophysical Environment
v. Wise use and conservation of environmental resources, giving due consideration to the use of resources by present and future generations;
    a. Prevent or minimize environmental impacts;
    b. Minimize air, water, and soil pollution; and
    c. Conserve Biodiversity.

In order to achieve the project's goal, the following principles must be followed:

TERM	DESCRIPTION
Accountability and Commitment	The Company Senior Executives and Line managers will be held responsible and accountable for: a. Health and safety of site personnel while on duty, b. Environmental impacts caused by exploration activities or by personnel engaged in the daily operations of the site.
Competence	The company will ensure a competent workforce through appropriate selection, training, and awareness of all safety, health, and environmental matters.

TERM	DESCRIPTION
Risk Assessment, Prevention, and Control	Identify, assess and prioritize potential environmental risks. Prevent or minimize risks through careful planning and design, allocation of financial resources, management, and workplace procedures. Intervene promptly in the event of adverse impacts arising.
Performance and Evaluation	Set appropriate objectives and performance indicators. Comply with all laws, regulations, policies, and environmental specifications. Implement regular monitoring and reporting of compliance with these requirements.
Stakeholder Consultation	Create and maintain opportunities for constructive consultations with employees, authorities, and other interested or affected parties. Seek to achieve an open exchange of information and mutual understanding in matters of common concern.
Continual Improvement	Through continual evaluation, reports, and innovation, seek to improve performance with regard to social health and well-being as well as environmental management throughout the lifespan of the project.
Financial Provisions for retail activities	In line with the internationally recognised "polluter pays principle" the company will make the necessary financial provision for compliance with the EMP.

3. ROLES AND RESPONSIBILITIES FOR ENVIRONMENTAL MANAGEMENT

3.1. Communication between Parties

Emphasis will be put towards open communication between all parties, in order to reach a proactive approach towards potential environmental issues deriving from the project. This approach should guarantee that environmental impacts are anticipated and prevented, or minimized, rather than adopting a negative "policing" approach after negative impacts have already occurred.

The importance of a proactive approach cannot be over-emphasized, particularly in relation to preventing unnecessary tracks, and damage to vegetation (i.e., protected and endemic species) as these impacts cannot easily be remedied.

3.2. The Exploration Operating Company

The company is ultimately responsible for all stages of the project and the impacts resulting from those activities. The responsible persons will be the company's Environmental Control Officer (ECO) and Managing Director to ensure that:

- The EMP and its environmental specifications are included in contractual documents and it is required that contractors, and subcontractors, consultants etc. do meet the EMP requirements;
- The company and all its subcontractors, consultants etc. comply with all Namibian legislation and policies and any relevant International Conventions;
- Compliance with the environmental specifications is enforced on a day-to-day basis;
- Environmental audits are conducted periodically by a suitably qualified ECO to confirm that the environmental requirements are properly understood and effectively implemented;
- Sufficient budget is provided to implement those measures that have cost implications;
- The Site Manager must commission tree surveys well in advance of planned road construction so that the necessary site visits by forestry personnel and forestry permits are acquired; and,
- Open and effective communication is maintained between all parties concerning environmental management on the project.

3.3. Site Managers

Day-to-day responsibility for environmental management will be assigned to the (Environmental Control Officer (ECO) and Manager Field Operations (MFO) for the duration of the project to:

- Be familiar with the contents of the EMP and applicable sections of the EIA and the measures recommended therein;
- Monitor compliance with the environmental specifications on a daily basis and enforce the environmental compliance on-site by communicating the ECO's directions to all personnel involved;
- In the event of any infringements leading to environmental damage, personnel need to consult with the ECO and seek advice on any remedial measures to limit or rectify the damage;
- Maintain a record (photographic and written) of "before-and-after" conditions on site;
- Facilitate communication between all role players in the interests of effective environmental management; and,

3.4. Environmental Control Officer (ECO)

The proponent must appoint a suitably qualified ECO who is responsible to:

- Undertake environmental audits of overall compliance with the environmental specifications. This should be done at least bi-annually for the project area,
- Submit a site inspection report to the Managing Director and MFO;
- Advise the MFO on interpretation and implementation of the environmental specifications as required; and,
- Make recommendations for remedial action in cases of non-compliance with the environmental specifications.
- The report should be submitted to the MEFT periodically at the time interval stipulated by law.

3.5. Contractors

The contractors will have the responsibility to:

- Familiarize themselves with the requirements of the EMP and comply with the environmental specifications within;

- Notify the ECO through the MFO timeously in advance of any actions that might have significant negative impacts. Mitigatory measures should be discussed and implemented before negative impacts arise;
- Conduct or arrange for environmental training for employees and sub-contractors;
- Undertake rehabilitation measures where required as far as possible, rehabilitation measures should be carried out progressively and not left till the end of the project.

4. ENVIRONMENTAL SPECIFICATIONS

4.1. Compliance with the Environmental Specifications

The activities will be conducted in an environmentally and socially responsible manner. The contractor and all personnel on-site will comply with the environmental specifications contained in this section.

4.2. Training and Awareness

All site personnel and site contractors will receive the training to equip them with the necessary knowledge to comply with the environmental specifications. The MFO will ensure that an appropriate level of training is provided at all levels of site personnel.

4.3. Stakeholder Relations

All site personnel will maintain good relations with the landowners and members of the public. Any complaints received by the ECO will be addressed.

4.4. Permits

All relevant permits shall be obtained from relevant authorities.
The removal or relocation of rare and endangered plants will be conserved and should it be removed or relocated it shall be done with the required permits from the Directorate of Forestry.

4.5. Road Safety

The access roads can be dangerous at times due to dust from passing vehicles, poor camber, patches of loose sand, careless drivers and other external factors. All drivers must be aware of these hazards and take precautions to avoid them. Such precautions will include, but not be limited to:

- Complying with speed limits;
- Reducing speed considerably when visibility is poor;
- Being wary of other vehicles
- Travelling with lights on even in daylight;
- Slowing down for animals and birds on the road; and,

- Being cautious of other road users– taking into account reduced visibility due to dust.

4.6. Access Tracks

- No new tracks will be made unless there are no pre-existing tracks, any new tracks or extensions should be established with the permission of the Municipality and other landowners.
- The selected access and site roads will be clearly marked. A single road only will be used to and from each destination. Turning points for vehicles will also be pre-selected and marked. Particular care will be taken to avoid damage to plants.
- Any elevated sites, or sites away from existing tracks, will be accessed on foot rather than by a vehicle.

4.7. Conservation of Biodiversity

- Damage to protected species will be avoided at all costs.

4.8. Wildlife Poaching

NB: It is an offence to poach wildlife.

No animal or bird is to be captured, killed or harmed in any way. Anyone caught violating this law will face suspension from the project and could be liable for prosecution. In a likewise manner, domestic livestock on farms may also not be harmed.

4.9. Soil Management and Erosion Control

- During any excavating and clearing the Contractor shall take care to remove as little topsoil as possible. All soil within 100mm of the cleared surface level shall be regarded as topsoil.
- Remove and separately stockpile any subsoil material that can be used for site backfilling.
- Topsoil shall be stockpiled (and seeded) in areas within the site boundary and approved by the Project Engineer in conjunction with the Environmental Consultant, for reuse and restoration.

- Avoid handling soil when wet as this may result in the loss of soil structure and compaction. Soils should not be handled during windy conditions, which may lead to the loss of soil through wind erosion.
- Soil erosion must be prevented at all times. Where evidence of soil erosion can and/or is taking place, this should be reported by the Contractor to the Project Engineer or Environmental Consultant.
- Unnecessary compaction of construction areas must be prevented, to reduce runoff velocity.
- Suitable erosion measures should be implemented in areas sensitive to erosion such as near water supply points, edges of slopes, etc. These measures could include the use of sandbags, hessian sheets, retention or replacement of vegetation.
- All the necessary precautions in terms of design and construction of earthworks, cuts, and fills must be taken.

4.10. Pollution Control

Should any incidence occur in terms of spilling, the shall report it immediately to the Developer and the Contractor shall be responsible for containing and cleaning up the spillage. The Contractor (Developer) shall ensure that correct mitigation of the pollution is undertaken.

4.10.1. Air pollution / Dust emission

- Excavations and other clearing activities should only be done during permissible weather conditions to avoid drifting of sand and dust into neighboring areas.
- Soil and sand stockpiles shall be located in sheltered areas not exposed to the wind.
- Retention of vegetation where possible will reduce dust travel.
- Exposed surfaces must be re-vegetated as soon as possible.
- The movement of vehicles and other vehicles should be strictly controlled in order to reduce the impact of increased air pollution.
- Adherence to speed limits shall be enforced.
- Sensible and responsible use of equipment which generates dust.
- It is recommended to practice dust monitoring per month in order to take note of the dust emitted at different distances and directions around the project area during operations.

4.10.2. Noise pollution

- Noise levels shall be kept within acceptable limits. All noise and sounds generated shall adhere to SABS 0103 specifications for maximum allowable noise levels for industrial areas.
- Noisy activities must be limited to between 06h00 to 18h00 to avoid disturbance of adjacent landowners.
- Noisy activities should not be allowed on weekends and public holidays unless specific arrangements have been made with the proponent and provided that neighbors have been timeously notified
- Vehicles and operating equipment must be regularly serviced.

4.11. Waste Management

- The area needs to be kept clean, neat, and tidy to the satisfaction of the proponent and ECO. The proponent will provide bins at the worksites and will be responsible for the collection and containment of daily refuse and waste generated by his staff. Bins will be secured in such a way that wind cannot remove papers and plastics. Bins will also be secured against animals around the vicinity.
- No waste will be buried on site. All waste will regularly be removed to an approved waste disposal facility.

4.12. Hazardous Substances

- All containers of fuel, oil, and any other hazardous substances will be kept sealed, and clearly labeled for identification.
- Tanks for fuels, oils, and any other hazardous substances need to be bunded to hold 110% of the capacity of the tank to contain any possible spills.
- If any spills occur, clean–up shall occur immediately and disposed of appropriately.

4.13. Fire Prevention

- Ensure an Emergency Response Plan
- No fires are to be left unattended
- Charcoal sourced from farmers should be 100% cured to avoid combustion

- The re burning of charcoal at minimal scale should be conducted during the day on less windy days with full supervision to avoid fly ashes to neighboring land.

4.14. Archaeological Sites

- All archaeological remains are protected under the National Heritage Act (2004) and are not to be destroyed, disturbed, or removed. The Act also requires that any archaeological finds, be reported to the Heritage Council Windhoek (**Tel. 061-244375**). The same applies to rock art sites.
- The ECO will be notified without delay of any archaeological finds.

4.15. Health and Safety

All company personnel will receive a detailed induction upon joining the project and on a regular basis thereafter.

- ***Dust:*** All staff will receive dust masks and proper PPE to prevent inhalation of potentially charcoal dust while carrying out any dust-producing activities associated with charcoal processing and packaging.
- Eating, drinking, and **smoking** while working with any materials that may contain radioactive or hazardous substances is forbidden. Good personal hygiene is encouraged (e.g., washing hands before eating) to prevent ingestion of potentially hazardous or radioactive materials.
- **Bees:** Bee stings are potentially dangerous to persons who are allergic to them. Bees are attracted to water, so water / liquid should not be left standing.
- **Snakes & Scorpions:** A number of poisonous snake and scorpion species may occur in the area. Therefore, precautions are required which include: -
  - Exercising caution when picking up rocks or equipment from the ground;
  - Looking at the ground when walking; and,
  - Wearing closed shoes and not walking barefoot.

In case of emergency Aspivenin (suction syringe) is permanently available at all workstations for the first aid treatment of snake bites, scorpion stings and bee stings. Antihistamine tablets should also be available for the first aid treatment of allergic reactions to bee stings.

4.16. Work Stoppage

The MFO will have the right to order work to stop in the event of environmental specification infringements that could result in damage to plants, wildlife, or personnel. Work will continue once the situation is rectified and brought to a state of compliance.
In the event of such work stoppage, the Contractor will not be entitled to claim for delays or standing time.

4.17. Compliance Monitoring

During exploration activities, the company ECO will conduct site compliance inspections at least once a month. After each inspection the ECO will compile an EMP compliance report for regular submission to the MFO and biannually to the MEFT or as required.

5. MITIGATION MEASURES

The purpose of the Environmental Management Plan is to provide a detailed plan to mitigate the negative and positive impacts identified in the environmental scoping and assessment report. Furthermore, it aims to provide actions with roles and responsibilities to implement the environmental specifications provided for to the proponent, contractors, subcontractors who will undertake exploration activities.

The following table provides a large-scale summary overview of all the major environmental management aspects. The scoping study submitted with this EMP also provide mitigation measures for impacts identified therein under chapter 12.

Table 1 – EMP Mitigation Measures

Aspect	MANAGEMENT DETAILS	RESPONSIBLE PERSONS	FREQUENCY
Access Control	• Make use of existing tracks/roads as much as possible throughout the area. • Only drive along the existing tracks and avoid unnecessary drives around the area as it may harm vertebrate fauna and unique flora and may also cause erosion related problems, etc.). • Avoid off-road driving at night as this increases mortality of nocturnal species. • Implement and maintain off-road track discipline with maximum speed limits (30km/h) • Where tracks must be made to potential exploration sites off the main routes, the routes should be selected along already disturbed areas or where there is minimal biodiversity expected to occur. • Avoid placing tracks within drainage lines. Avoid collateral damage (i.e. select routes that do not require the unnecessary removal of trees/shrubs, especially protected species). • Rehabilitate all new tracks created.	Contractor, Project Manager	On-going
Establishing Storage Areas	• Establishment of the supporting exploration infrastructure should be done on an area with the least disturbance to the environment and within the non-sensitive areas. • Choice of location for storage areas must take into consideration prevailing winds, distance to water bodies and general on-site topography. • Storage areas must be designated, demarcated, and fenced if necessary. • Storage areas should be secure to minimize the risk of crime. • They should be safe from access by children and animals etc.	Contractor, Project Manager	On-going

Aspect	MANAGEMENT DETAILS	RESPONSIBLE PERSONS	FREQUENCY
	• Fire prevention facilities must be present at all storage facilities.		
Establishing Storage Areas	**Hazardous Material Storage** • Hazardous substances are those that are potentially poisonous, flammable, carcinogenic, or toxic. Some examples are diesel, petroleum, oil, bitumen, cement,solvent-based paints, lubricants, explosives, drilling fluids. • Material safety Data Sheets (MSDSs) shall be readily available on site for all chemicals and hazardous substances to be used on site. Where possible and available, MSDSs should additionally include information on ecological impacts andmeasures to minimize negative environmental impacts during accidental releases or escapes. • Hazardous storage areas must be 110% bunded with an impermeable liner to protect groundwater and soil from contamination. The Contractor shall submit a methodstatement to the Project Manager for approval. • Storage areas containing hazardous substance materials must be clearly signposted.	Environmental Control Officer (ECO), Proponent	
Education Of Site Staff on General Environmental Conduct	**Environmental Education and Awareness** • Ensure that all site personnel have a basic level of environmental awareness training. The proponent must submit a proposal for this training to the ECO for approval. Topics to be covered should include: o What is meant by "environment"; o Why the environment needs to be protected and conserved	Environmental Control Officer (ECO), Proponent	During staff induction and ongoing

Aspect	MANAGEMENT DETAILS	RESPONSIBLE PERSONS	FREQUENCY
	○ How construction activities can impact on the environment; ○ What can be done to mitigate against such impacts; ○ Awareness of emergency and spills response provisions; ○ Social responsibility during exploration, e.g., being considerate to local residents. • It is the proponent's responsibility to provide the site with no less than 1 hour's environmental training and to ensure that there is sufficient understanding to pass this information onto the anyone operating at the site. • The need for a 'clean site' policy also needs to be explained to all workers.		
Education Of Site Staff on General Environmental Conduct	**<u>Workers Conduct on site</u>** • A general regard for the social and ecological wellbeing of the site and adjacent areas is expected of the site staff. Workers need to be made aware of the following general rules: • No alcohol / drugs to be present on site. • No firearms allowed on site or in vehicles transporting staff to / from site (unless used by security personnel). • Prevent excessive noise. • Prevent unsocial behaviour. • Bringing pets onto the site is forbidden. • No harvesting of firewood from the site or from the adjacent areas.	Proponent, Employees, Environmental Control Officer (ECO)	During staff induction and ongoing

Aspect	MANAGEMENT DETAILS	RESPONSIBLE PERSONS	FREQUENCY
	• Exploration staff are to make use of the facilities provided for them, as opposed to ad-hoc alternatives, (e.g., fires for cooking, the use of surrounding areas / bush as a toilet is forbidden). • Trespassing on private / commercial properties adjoining the site is forbidden. • Driving under the influence of alcohol is prohibited. • Other than the pre-approved security staff, no workers shall be permitted to live on site.		
Social Impacts	• Avoid exacerbating the influx of unemployed people to the area and address the unrealistic expectations about large numbers of jobs would be created. • Develop a standardized recruitment method for sub-contractor and field workers • The employment of local residents and local companies should be a priority. • Exploration camp if required should be established in close consultation with the landowners. • Exploration camp should consider provision of basic services. • Contract companies could submit a code of conduct, stipulating disciplinary actions where employees are guilty of criminal activities in and around the vicinity of the EPL. Disciplinary actions should be in accordance with Namibian legislation. • Contract companies could implement a no-tolerance policy regarding the use of alcohol and workers should submit to a breathalyser test upon reporting for duty daily.	Contractor, Project Manager	During staff induction and ongoing

Aspect	MANAGEMENT DETAILS	RESPONSIBLE PERSONS	FREQUENCY
	• Request that the Roads Authority erect warning signs of heavy exploration vehicles on affected public roads. • Ensure that drivers adhere to speed limits and that speed limits are strictly enforced. • Ensure that vehicles are road worthy, and drivers are qualified. • Train drivers in potential safety issues.		
Fauna And Flora	**Fauna and Flora** • No protected vegetation may be cleared without prior permission from the forestry department. • Care must be taken to avoid the introduction of alien plant species to the site and surrounding areas. • Disturbance to birds, animals and reptiles and their habitats should be minimized Wherever possible. • Avoid unnecessary affecting areas viewed as important habitat • Avoid off-road driving at night as this increases mortality of nocturnal species. • Implement and maintain off-road track discipline with maximum speed limits (e.g.30km/h).	Contractor, Project Manager	Ongoing
Visual	• Consider the landscape character and the visual impacts of the exploration area including camp site from all relevant viewing angles, particularly from public roads. • Use vegetation screening where applicable. Do not cut down vegetation unnecessary around the site and use it for site screening.	Contractor, Project Manager	Ongoing

Aspect	MANAGEMENT DETAILS	RESPONSIBLE PERSONS	FREQUENCY
	• Avoid the use of very high fencing. • Minimise access roads and no off-road that could result in land scarring is allowed. • Minimise the presence of secondary structures: remove inoperative support structures. • Remove all infrastructure and reclaim or rehabilitate the project site after exploration activities are completed.		
Air Quality	• Dust suppression techniques should be employed if the specific operation activity is likely to create dusty atmospheric conditions in excess of the periodic extremes. • Avoid activities that create excessive dust on extremely windy days. • Personnel are required to wear personal protection equipment if excessive dust is created for prolonged working periods.	Contractor, Project Manager	Ongoing
Noise	• A grievance procedure will be established whereby noise complaints can be received, recorded, and responded to appropriately. • Machineries and vehicles (moving and stationed) should be serviced regularly. • A noise management standard operating procedure (SOP) for the activities happening on-site should be developed • Avoid creating unnecessary noise by making sure that equipment that are not in used are always turned off and by avoiding operations during odd hours. • Fit sound mufflers on all machinery where applicable.	Contractor, Project Manager	Ongoing

Aspect	MANAGEMENT DETAILS	RESPONSIBLE PERSONS	FREQUENCY
	• Equip employees with proper PPE (noise reduction earmuffs) • Employees should work in shifts to avoid prolonged working hours and consequently prolonged exposure to noise.		
Soil And Groundwater Contamination	• Accidental spills that occur outside of the bund area must be contained and preventedfrom entering the stormwater system. • Spills must be treated with the appropriate spill absorbent. • Any significant spills or leak incidents must be reported in terms of the National Environmental Management Act and the Water Act.	Contractor, Project Manager	Ongoing
Waste	• The domestic waste, which is separated from all paper and organic materials, is taken to the nearest official dumpsite. • Oil from the servicing of the vehicles and machines is collected in drums and is taken together with all other industrial waste that is generated on site to the nearest hazardous waste site. • Storage areas that contain hazardous substances must be bunded with an approved impermeable liner. • Bins and / or skips shall be provided at convenient intervals for disposal of waste within the exploration site. • Bins should have liner bags for efficient control and safe disposal of waste. • Recycling and the provision of separate waste receptacles for different types of waste should be encouraged • Ensure good housekeeping	All personnel	Ongoing

Aspect	MANAGEMENT DETAILS	RESPONSIBLE PERSONS	FREQUENCY
	Ablutions • Waterless toilets are to be maintained in a clean state and should be moved to ensure that they adequately service the work areas. • The Contractor is to ensure that open areas or the surrounding bush are not being used as a toilet facility.		
Heritage sites destruction during exploration activities	• In addition, where possible, construction and operational activities are to be aligned along previously disturbed areas. Habitats surrounding the washes (rivers) host sensitive plant species which require permits for removal to avoid destruction. No wandering around the site, collecting of plant species or hunting should be allowed. • A 'chance find' of any potential heritage site should be communicated to the police and the National Heritage Council of Namibia. • If activities occur at the location where a 'chance find' has been made, then the activities should cease until the necessary authorities have visited the site and provided the go ahead to proceed with activities •	Contractor, Project Manager	Ongoing
Rehabilitation	• Small samples are preferably removed from site to avoid additional scars in the landscape. • Litter from the site has been taken to the appropriate disposal site. • Debris, scrap metal, etc is removed before moving to a new site or closure of the mine. • Water / Fuel tanks are dismantled and removed if not need for after use. • Tracks on site and the access road are rehabilitated by smoothing the	Contractor, Project Manager	Progressively and prior ceasing exploration activities

Aspect	MANAGEMENT DETAILS	RESPONSIBLE PERSONS	FREQUENCY
	'middle mannetjie'(middle ridge between the tracks) and raking the surface. • if applicable the stockpiled subsoil to be replaced (spread) and/or the site is neatly contoured to establish effective wind supported landscape patterns. • Replace the stored topsoil seed bank layer.		

6. MONITORING PLAN

The project monitoring is conducted under the EMP includes:

(i) **Project readiness monitoring** - Monitoring to check progress on project readiness and close gaps through corrective actions.

(ii) **Environmental quality monitoring** - To be conducted by a competent authority or person appointed by the proponent, involving the collection and analyses of air quality, noise and water quality data at designated monitoring locations for assessing compliance with applicable environmental quality and emission standards.

(iii) **EMP compliance monitoring -** To be conducted by the Project Management Consultants to verify EMP compliance during project implementation.

(iv) **Operational monitoring** - This is required as part of the operations of the subproject and will be undertaken by the relevant government department or a nominated private sector operator.

7. CONCLUSION

This Environmental Management Plan highlights the management measures that will be implemented to mitigate the environmental impacts of the proposed activities. Additionally, it highlights the need / requirements for the Environmental Emergency Preparedness and Response procedure.

The EMP is a legal document, which commits the applicant to comply with all management measures, monitoring programmes and other plans as presented herein. As part of the EMP, monitoring programmes have been provided to manage and control critical components of the environment. This is a live document which may be amended if project activities alter.

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APPENDIX A – LIST OF FLORA SPECIES THAT CAN BE FOUND IN THE AREA (NBRI, 2022)

Species	ENDEMISM	Protected	IUCN2
Abutilon pycnodon Hochr.			
Acacia reficiens Wawra subsp. reficiens			
Acanthopsis hoffmannseggiana (Nees) C.B.Clarke			
Acrotome fleckii (Gürke) Launert	Endemic		
Adenolobus garipensis (E.Mey.) Torre & Hillc.			
Adenolobus pechuelii (Kuntze) Torre & Hillc. subsp. pechuelii			
Aizoanthemum dinteri (Schinz) Friedrich	Endemic		
Aizoanthemum galenioides (Fenzl ex Sond.) Friedrich	Endemic		
Aloe asperifolia A.Berger	Endemic	Protected	
Anticharis ebracteata Schinz	Endemic		
Anticharis imbricata Schinz	Endemic		
Arctotis venusta Norl.			
Aristida parvula (Nees) De Winter			
Arthraerua leubnitziae (Kuntze) Schinz	Endemic		
Atriplex lindleyi Moq. subsp. inflata (F.Muell.) Paul G.Wilson			
Atriplex semibaccata R.Br. var. appendiculata Aellen			
Blepharis grossa (Nees) T.Anderson	Near Endemic		
Blepharis obmitrata C.B.Clarke			
Boscia albitrunca (Burch.) Gilg & Gilg-Ben.		Forestry Protected	
Brachiaria glomerata (Hack.) A.Camus			
Brownanthus kuntzei (Schinz) Ihlenf. & Bittrich			
Calostephane marlothiana O.Hoffm.	Endemic		
Camptoloma rotundifolium Benth.			
Capparis hereroensis Schinz	Endemic		
Centropodia glauca (Nees) Cope			
Chascanum garipense E.Mey.			
Chenopodium murale L. var. acutidentatum Aellen			
Chenopodium murale L. var. murale			
Citrullus ecirrhosus Cogn.	Near Endemic		

Cladoraphis spinosa (L.f.) S.M.Phillips			
Cleome elegantissima Briq.			
Cleome foliosa Hook.f. var. lutea (Sond.) Codd & Kers			
Cleome gynandra L.			
Cleome semitetrandra Sond.			
Cleome suffruticosa Schinz	Endemic		
Codon royenii L.			
Commiphora oblanceolata Schinz	Near Endemic		
Commiphora saxicola Engl.	Endemic		
Commiphora wildii Merxm.			
Cordia sp. C			
Cotula anthemoides L.			
Cotula coronopifolia L.			
Cotyledon orbiculata L. var. orbiculata			
Crassothonna protecta (Dinter) B.Nord.			
Crotalaria colorata Schinz subsp. colorata	Endemic		
Crotalaria colorata Schinz subsp. erecta (Schinz) Polhill	Endemic		
Cucumis africanus L.f.			
Cullen tomentosum (Thunb.) J.W.Grimes			
Cyamopsis serrata Schinz			
Cynodon dactylon (L.) Pers.			
Cyperus laevigatus L.			
Cyperus marginatus Thunb.			
Datura innoxia Mill.			
Dauresia alliariifolia (O.Hoffm.) B.Nord. & Pelser			
Deverra denudata (Viv.) Pfisterer & Podlech subsp. aphylla (Cham. & Schltdl.) Pfisterer & Podlech			
Dichrostachys cinerea (L.) Wight & Arn. subsp. africana Brenan & Brummitt var. africana			
Dinteracanthus kaokoanus (E.Tripp & K.G.Dexter) E.Tripp & I.Darbysh.	Endemic		
Dipcadi platyphyllum Baker			
Doellia cafra (DC.) Anderb.			
Drimia fasciata (B.Nord.) J.C.Manning & Goldblatt			

Dyerophytum africanum (Lam.) Kuntze			
Eleocharis seydeliana Podlech			
Engleria africana O.Hoffm.			
Enneapogon desvauxii P.Beauv.			
Entoplocamia aristulata (Hack. & Rendle) Stapf			
Eragrostis annulata Rendle ex Scott-Elliot			
Eragrostis omahekensis De Winter	Endemic		
Eriocephalus pinnatus O.Hoffm.	Endemic		
Euclea pseudebenus E.Mey. ex A.DC.			
Euphorbia giessii L.C.Leach	Endemic		
Euphorbia glanduligera Pax			
Euphorbia lignosa Marloth	Near Endemic		
Euphorbia phylloclada Boiss.			
Fagonia minutistipula Engl.			
Faidherbia albida (Delile) A.Chev.		Forestry Protected	
Felicia anthemidodes (Hiern) Mendonça			
Felicia smaragdina (S.Moore) Merxm.	Endemic		
Ficus cordata Thunb. subsp. cordata		Forestry Protected	
Flaveria bidentis (L.) Kuntze			
Forsskaolea hereroensis Schinz	Near Endemic		
Frankenia pulverulenta L.			
Galenia africana L.			
Galenia papulosa (Eckl. & Zeyh.) Sond.			
Galenia papulosa (Eckl. & Zeyh.) Sond. var. microphylla Adamson			
Gazania jurineifolia DC. subsp. scabra (DC.) Roessler	Near Endemic		
Geigeria ornativa O.Hoffm.			
Geigeria rigida O.Hoffm.	Endemic		
Gisekia africana (Lour.) Kuntze var. africana			
Glinus lotoides L. var. lotoides			
Gomphocarpus filiformis (E.Mey.) Dietr.			
Gossypium herbaceum L. subsp. africanum (Watt) Vollesen			
Helichrysum argyrosphaerum DC.			
Helichrysum candolleanum H.Buek			

Helichrysum herniarioides DC.			
Helichrysum obtusum (S.Moore) Moeser			
Helichrysum roseo-niveum Marloth & O.Hoffm.			
Heliotropium albiflorum Engl.	Endemic		
Heliotropium curassavicum L.			
Heliotropium ovalifolium Forssk.			
Heliotropium tubulosum E.Mey. ex DC.			
Hermannia affinis K.Schum.			
Hermannia amabilis Marloth ex K.Schum.	Endemic		
Hermannia helianthemum K.Schum.			
Hermannia solaniflora K.Schum.	Near Endemic		
Hermbstaedtia spathulifolia (Engl.) Baker	Endemic		
Hexacyrtis dickiana Dinter	Near Endemic		
Hibiscus elliottiae Harv.			
Hirpicium gazanioides (Harv.) Roessler			
Hoodia currorii (Hook.) Decne. subsp. currorii		Protected	
Hoodia gordonii (Masson) Sweet ex Decne.		Protected	Near Threatened
Hypertelis cerviana (L.) Thulin			
Hypertelis salsoloides (Burch.) Adamson var. salsoloides			
Indigastrum argyroides (E.Mey.) Schrire			
Indigofera auricoma E.Mey.			
Indigofera heterotricha DC. subsp. heterotricha			
Jamesbrittenia barbata Hilliard	Endemic		
Jamesbrittenia canescens (Benth.) Hilliard var. canescens			
Jamesbrittenia hereroensis (Engl.) Hilliard	Endemic		
Jamesbrittenia maxii (Hiern) Hilliard			
Juncus rigidus Desf.			
Kissenia capensis Endl.			
Kleinia longiflora DC.			
Kohautia caespitosa Schnizl. subsp. brachyloba (Sond.) D.Mantell			
Kohautia ramosissima Bremek.			

Launaea intybacea (Jacq.) P.Beauv.			
Leobordea platycarpa (Viv.) B.-E. van Wyk & Boatwr. [2]			
Lepidium englerianum (Muschl.) Al-Shehbaz			
Limeum argute-carinatum Wawra ex Wawra & Peyr. var. argute-carinatum			
Limeum myosotis H.Walter var. confusum Friedrich			
Lobelia thermalis Thunb.			
Lolium rigidum Gaudich.			
Lophiocarpus polystachyus Turcz.			
Lycium oxycarpum Dunal			
Lycium tetrandrum Thunb.			
Maerua schinzii Pax		Forestry Protected	
Mesembryanthemum cryptanthum Hook.f.			
Mesembryanthemum guerichianum Pax			
Microcharis disjuncta (J.B.Gillett) Schrire var. disjuncta			
Monechma cleomoides (S.Moore) C.B.Clarke			
Monechma desertorum (Engl.) C.B.Clarke	Endemic		
Monechma divaricatum (Nees) C.B.Clarke			
Myxopappus hereroensis (O.Hoffm.) Källersjö	Endemic		
Nesaea luederitzii Koehne var. luederitzii			
Nidorella resedifolia DC. subsp. resedifolia			
Odyssea paucinervis (Nees) Stapf			
Ondetia linearis Benth.	Endemic		
Ophioglossum polyphyllum A.Braun			
Ornithogalum rautanenii Schinz	Endemic		
Ornithogalum stapffii Schinz	Endemic		
Ornithoglossum vulgare B.Nord.			
Orthanthera albida Schinz			
Osteospermum microcarpum (Harv.) Norl. subsp. microcarpum			
Panicum repens L.			
Parkinsonia africana Sond.			

Paspalum vaginatum Sw.			
Pechuel-loeschea leubnitziae (Kuntze) O.Hoffm.			
Pelargonium otaviense R.Knuth			
Pergularia daemia (Forssk.) Chiov. var. daemia			
Petalidium canescens (Engl.) C.B.Clarke	Endemic		
Petalidium variabile (Engl.) C.B.Clarke var. spectabile Mildbr.	Endemic		
Phragmites australis (Cav.) Steud.			
Poa annua L.			
Polygala guerichiana Engl.			
Polygonum plebeium R.Br.			
Polypogon monspeliensis (L.) Desf.			
Polypogon viridis (Gouan) Breistr.			
Potamogeton pectinatus L.			
Psilocaulon kuntzei (Schinz) Dinter & Schwantes			
Psilocaulon salicornioides (Pax) Schwantes	Near Endemic		
Raphionacme haeneliae Venter & Verhoeven	Endemic		
Rhus marlothii Engl.			
Ruellia marlothii Engl.			
Ruppia maritima L.			
Salsola aphylla L.f.			
Salsola arborea C.A.Sm. ex Aellen			
Salsola gemmifera Botsch.			
Salsola kali L.			
Salsola swakopmundi Botsch.	Endemic		
Salvadora persica L. var. persica			
Salvia garipensis E.Mey. ex Benth.	Near Endemic		
Sarcocaulon mossamedense (Welw. ex Oliv.) Hiern	Near Endemic		
Sarcocornia natalensis (Bunge ex Ung.-Sternb.) A.J.Scott var. affinis (Moss) O'Callaghan			
Senecio engleranus O.Hoffm.	Endemic		
Senecio flavus (Decne.) Sch.Bip.			
Sesamum marlothii Engl.	Endemic		
Sesbania pachycarpa DC. subsp. dinterana J.B.Gillett	Near Endemic		
Sesuvium sesuvioides (Fenzl) Verdc.			

Sonchus oleraceus L.			
Spergularia media (L.) C.Presl			
Sporobolus consimilis Fresen.			
Sporobolus nebulosus Hack.	Near Endemic		
Sporobolus virginicus (L.) Kunth			
Stapelia kwebensis N.E.Br.		Protected	
Stipagrostis ciliata (Desf.) De Winter var. capensis (Trin. & Rupr.) De Winter			
Stipagrostis damarensis (Mez) De Winter	Near Endemic		
Stipagrostis dinteri (Hack.) De Winter			
Stipagrostis giessii Kers			
Stipagrostis hermannii (Mez) De Winter	Near Endemic		
Stipagrostis hochstetteriana (Beck ex Hack.) De Winter var. hochstetteriana			
Stipagrostis hochstetteriana (Beck ex Hack.) De Winter var. secalina (Henrard) De Winter			
Stipagrostis namaquensis (Nees) De Winter			
Stipagrostis obtusa (Delile) Nees			
Stipagrostis schaeferi (Mez) De Winter			
Stipagrostis subacaulis (Nees) De Winter			
Suaeda merxmuelleri Aellen			
Suaeda plumosa Aellen			
Tamarix ramosissima Ledeb.			
Tamarix usneoides E.Mey. ex Bunge			
Tapinanthus oleifolius (J.C.Wendl.) Danser			
Tephrosia dregeana E.Mey. var. dregeana	Near Endemic		
Tetraena clavata (Schltr. & Diels) Beier & Thulin	Near Endemic		
Tetragonia decumbens Mill.			
Tetragonia reduplicata Welw. ex Oliv.			
Trianthema hereroensis Schinz	Endemic		
Tribulus excrucians Wawra			
Tribulus zeyheri Sond. subsp. zeyheri			
Trichodesma africanum (L.) Lehm.			

Tripteris microcarpa Harv. subsp. microcarpa			
Tripteris microcarpa Harv. subsp. septentrionalis (Norl.) B.Nord.			
Tripteris nervosa Hutch.	Endemic		
Triraphis pumilio R.Br.			
Vahlia capensis (L.f.) Thunb. subsp. vulgaris Bridson var. vulgaris			
Verbesina encelioides (Cav.) Benth. & Hook.f. ex A.Gray var. encelioides			
Welwitschia mirabilis Hook.f.	Near Endemic	Protected	
Xanthium strumarium L.			
Zannichellia palustris L.			
Zygophyllum simplex L.			
Zygophyllum spongiosum Van Zyl			
Zygophyllum stapffii Schinz	Endemic		

APPENDIX B – LIST OF FAUNA SPECIES THAT CAN BE FOUND IN THE AREA (UCCB, 2011)

Reptile diversity known and/or expected to occur in the general Kuiseb delta and dune belt area – i.e., Walvis Bay and Swakopmund areas.

Species: Scientific name	Species: Common name	Namibian conservation and legal status	International status
TURTLES AND TERRAPINS			
Pelomedusa subrufa	Marsh/Helmeted Terrapin	Secure	
SNAKES			
Thread Snakes			
Leptotyphlops occidentalis	Western Thread Snake	Endemic ;Secure	SARDB Peripheral
Leptotyphlops labialis	Damara Thread Snake	Endemic ;Secure	
Burrowing Snakes			
Xenocalamus bicolour bicolor	Bicoloured Quill-snoutedSnake	Secure	
Typical Snakes			
Lamprophis fuliginosus	Brown House Snake	Secure	
Lycophidion capense	Cape Wolf Snake	Secure	
Pseudaspis cana	Mole Snake	Secure	
Dipsina multimaculata	Dwarf Beaked Snake	Endemic ;Secure	
Psammophis trigrammus	Western Sand Snake	Endemic ;Secure	
Psammophis notostictus	Karoo Sand Snake	Secure	
Psammophis leightoni namibensis	Namib Sand Snake	Secure	
Dasypeltis scabra	Common/Rhombic EggEater	Secure	
Aspidelaps lubricus infuscatus	Coral Snake	Secure	
Aspidelaps scutatus	Shield-nose Snake	Secure	
Naya nigricincta	Black-necked Spitting Cobra	Endemic ;Secure	
Bitis arietans	Puff Adder	Secure	
Bitis caudalis	Horned Adder	Secure	
Bitis peringueyi	Péringuey"s Adder	Endemic ;Secure	
LIZARDS			
Skinks			
Typhlosaurus braini	Brains"s Blind Legless Skink	Endemic ;Secure	
Typhlacontias brevipes	FitzSimmons" Burrowing Skink	Endemic ;Secure	
Trachylepis occidentalis	Western Three-striped Skink	Secure	
Trachylepis striata wahlbergi	Striped Skink	Secure	

Trachylepis sulcata	Western Rock Skink	Secure	
Trachylepis variegata variegate	Variegated Skink	Secure	
Old World Lizards			
Heliobolus lugubris	Bushveld Lizard	Secure	
Meroles anchietae	Shovel-snouted Lizard	Secure	
Meroles cuneirostris	Wedge-snouted DesertLizard	Endemic ;Secure	
Meroles micropholidotus	Small-scaled Desert Lizard	Endemic ;Rare?	
Meroles reticulates	Reticulated Desert Lizard	Endemic ;Secure	
Meroles suborbitalis	Spotted Desert Lizard	Secure	
Pedioplanis breviceps	Short-headed Sand Lizard	Endemic ;Secure	
Pedioplanis namaquensis	Namaqua Sand Lizard	Secure	
Pedioplanis inornata	Plain Sand Lizard	Endemic ;Secure	
Plated Lizards			
Cordylosaurus subtessellatus	Dwarf Plated Lizard	Endemic ;Secure	
Monitors			
Varanus albigularis	Rock Monitor	Vulnerabl e; Peripheral Protected Game	CITES Appendix II Safe to Vulnerable
Agama			
Agama planiceps	Namibian Rock Agama	Secure	
Chameleons			
Bradypodion pumilum	Cape Dwarf Chameleon	Introduced alien Secure	CITES Appendix II
Chamaeleo namaquensis	Namaqua Chameleon	Secure	CITES Appendix II
Geckos			
Afroedura africana	African Flat Gecko	Endemic ;Rare?	
Chondrodactylus angulifer namibensis	Giant Ground Gecko	Secure	
Narudasia festiva	Festive Gecko	Endemic ;Secure	
Pachydactylus bicolour	Velvety Thick-toed Gecko	Endemic ;Secure	
Pachydactylus kockii	Koch"s Thick-toed Gecko	Endemic ;Secure	
Pachydactylus turneri	Turner"s Thick-toed Gecko	Secure	
Pachydactylus scherzi	Schertz"s Thick-toed Gecko	Endemic ;Secure	
Pachydactylus rugosus rugosus	Rough Thick-toed Gecko	Endemic ;Secure	
Pachydactylus weberi werneri	Weber"s Thick-toed Gecko	Endemic ;Secure	

Palmatogecko rangei	Wed-footed Gecko	Endemic ;Secure	
Ptenopus carpi	Carp"s Barking Gecko	Endemic ;Secure	
Ptenopus garrulus maculatus	Common Barking Gecko	Secure	
Ptenopus kocki	Kock"s Barking Gecko	Endemic ;Secure	
Rhoptropus afer	Common Namib Day Gecko	Endemic ;Secure	
Rhoptropus boultoni	Boulton"s Namib Day Gecko	Endemic ;Secure	
Rhoptropus bradfieldi	Bradfield"s Namib DayGecko	Endemic ;Secure	

Amphibian diversity known and/or expected to occur in the general Kuiseb delta and dune belt area – i.e. Walvis Bay and Swakopmund areas.

Species: Scientific name	Species: Common name	Status
Toads		
Poyntonophrynus dombensis	Dombe Toad	Endemic
Poyntonophrynus hoeschi	Hoesch"s Toad	Endemic
Amietophrynus poweri	Power"s Toad or Western Olive Toad	
Rain Frogs		
Breviceps adspersus	Common/Bushveld Rain Frog	
Rubber Frog		
Phrynomantis annectens	Marbled Rubber Frog	Endemic
Bull and Sand Frogs		
Tomopterna tandyi	Tandy"s Sand Frog	
Platannas		
Xenopus laevis	Common Platanna	

Mammal diversity known and/or expected to occur in the general Kuiseb delta and dune belt area – i.e. Walvis Bay and Swakopmund areas.

Species: Scientific name	Species: Common name	Namibian conservation	Species: Scientific name
Moles			
Eremitalpa granti	Grant"s Golden Mole	Endemic; Secure	[1]Vulnerable
Elephant Shrews			
Macroscelides proboscideus flavicaudatus	Round-eared Elephant-shrew	Endemic; Secure	
Bats			
Lissonycteris angolensis	*Angolan Soft-furred FruitBat	Not listed	
Tadarida aegyptiaca	Egyptian Free-tailed Bat	Secure	

Cistugo seabrai	Namibian Wing-gland Bat	Endemic; Rare	[1]Vulnerable; [2]Near Threatened
Laephotis namibensis	Namib Long-eared Bat	Endemic; Insufficiently known	
Nycteris thebaica	Common Slit-faced Bat	Secure	
Rhinolophus clivosus	Geoffroy"s Horseshoe Bat	Secure	[1]Near Threatened
Rhinilophus darling	Darling"s Horseshoe Bat	Secure	[1]Near Threatened
Rhinolophus capensis	*Cape Horseshoe Bat	Secure	[1]Near Threatened; [2]Near Threatened
Taphozous mauritianus	*Mauritanian Tomb Bat	Secure	
Chaerephon ansorgei	*Ansorge"s Free-tailed Bat	Not listed	
Sauromys petrophilus	Roberts"s Flat-headed Bat	Secure	
Miniopterus natalensis	Natal Long-fingered Bat	Secure	[1]Near Threatened
Eptesicus hottentotus	Long-tailed Serotine	Secure	
Neoromicia zuluensis	*Zulu Serotine	Secure	
Pipistrellus rueppellii	*Rüppell"s Pipistrelle	Insufficiently known; Peripheral	
Hares and Rabbits			
Lepus capensis	Cape Hare	Secure	
Rodents			
Rats and Mice			
Parotomys littledalei namibensis	Littledale"s Whistling Rat	Endemic; Secure	[1]Near Threatened
Rhabdomys pumilio	Striped Mouse	Secure	
Mus musculus	House Mouse	Invasive alien	
Aethomys chrysophilus	Red Veld Rat	Secure	
Micaelamys (Aethomys) namaquensis	Namaqua Rock Mouse	Secure	
Rattus	House Rat	Invasive alien	
Rattus norvegicus	Brown Rat	Invasive alien	
Desmodillus auricularis	Short-tailed Gerbil	Secure	
Gerbillurus paeba infernus	Hairy-footed Gerbil	Endemic; Insufficiently known	
Gerbillurus tytonis	Dune Hairy-footed Gerbil	Endemic; Secure	
Gerbillurus setzeri	Setzer"s Hairy-footed Gerbil or Namib Brush-tailedGerbil	Endemic	
Petromyscus collinus	Pygmy Rock Mouse	Endemic; Secure	
Mastomys coucha	Southern MultimammateMouse	Secure	
Petromys typicus	Dassie Rat	Endemic; Secure	[1]Near Threatened
Carnivores			
Hyaena brunnea	Brown Hyena	Insufficiently	[1]Near Threatened
		known;	

		Vulnerable?	
Peripheral	2Near Threatened		
Crocuta	Spotted Hyena	Secure? Peripheral	1Near Threatened
Felis silvestris	African Wild Cat	Vulnerable	CITES Appendix II
Vulpes chama	Cape Fox	Vulnerable?	
Canis mesomelas	Black-backed Jackal	Secure; Problem animal	
Ictonyx striatus	Striped Polecat	Secure	
Suricata suricatta marjoriae	Suricate	Endemic; Secure	
Antelopes			
Sylvicapra grimmia	Common Duiker	Secure	
Antidorcas marsupialis	Springbok	Secure; Huntable game	

Bird diversity known and/or expected to occur in the general Kuiseb delta and dune belt area – i.e. Walvis Bay and Swakopmund areas.

Species: Scientific name	**Species: Common name**	**Status: Namibia**	**Status: Southern Africa**
Struthio camelus	Common Ostrich		
Podiceps cristatus	Great Crested Grebe		
Tachybaptus ruficollis	Little Grebe		
Podiceps nigricollis	Black-necked Grebe		
Pelecanus onocrotalus	Great White Pelican		
Pelecanus rufescens	Pink-backed Pelican		
Phalacrocorax lucidus	White-breasted Cormorant		
Morus capensis	Cape Gannet	Specially protected	Vulnerable; Breeding endemic
Phalacrocorax capensis	Cape Cormorant		Near-threatened; Breeding endemic
Phalacrocorax neglectus	Bank Cormorant	Specially protected	Endemic; Endangered
Phalacrocorax africanus	Reed Cormorant		
Phalacrocorax coronatus	Crowned Cormorant		Endemic; Near-threatened
Anhinga melanogaster	Darter		
Ardea cinerea	Grey Heron		
Ardea melanocephala	Black-headed Heron		
Ardea purpurea	Purple Heron		
Egretta garzetta	Little Egret		
Egretta intermedia	Yellow-billed Egret		
Egretta alba	Great Egret		

Egretta ardesiaca	Black Egret		
Bubulcus ibis	Cattle Egret		
Ardeola ralloides	Squacco Heron		
Ixobrychus minutes	Little Bittern		
Scopus umbretta	Hamerkop		
Ciconia nigra	Black Stork		
Phoenicopterus ruber	Greater Flamingo	Vulnerable	
Phoenicopterus minor	Lesser Flamingo	Vulnerable	Near-threatened
Dendrocygna viduata	Whitefaced Duck		
Alopochen aegyptiacus	Egyptian Goose		
Anas capensis	Cape Teal		
Anas hottentota	Hottentot Teal		
Anas erythrorhyncha	Redbiled Teal		
Anas smithii	Cape Shoveller		
Netta erythrophthalma	Southern Pochard		
Sagittarius serpentarius	Secretarybird		
Gyps africanus	White-backed Vulture		
Aegypius tracheliotus	Lappet-faced Vulture		
Circaetus pectoralis	Black-chested Snake-Eagle		
Elanus caeruleus	Black-shouldered Kite		
Aquila verreauxii	Verreaux"s Eagle		
Aquila rapax	Tawny Eagle		
Polemaetus bellicosus	Martial Eagle		
Buteo augur	Augur Buzzard		
Melierax canorus	Southern Pale ChantingGoshawk		Near endemic
Falco peregrines	Peregrine Falcon		
Falco biarmicus	Lanner Falcon		
Falco chicquera	Red-necked Falcon		
Falco rupicolus	Rock Kestrel		
Falco rupicoloides	Greater Kestrel		
Francolinus adspersus	Red-billed Francolin		
Trunix sylvatica	Kurrichane Buttonquail		
Porphyrio	African Purple Swamphen		
Gallinula chloropus	Common Moorhen		
Fulica cristata	Red-knobbed Coot		
Ardeotis kori	Kori Bustard		
Neotis ludwigii	Ludwig"s Bustard		Endangered;Near endemic
Eupodotis rueppellii	Rüppell"s Korhaan	Endemic	Near endemic
Eupodotis afra	Black Korhaan		
Actophilornis africanus	African Jacana		
Rostratula benghalensis	Painted Snipe		
Haematopus moquini	African Black Oystercatcher	Vulnerable	Near threatened;Endemic
Charadrius marginatus	White-fronted Plover		
Charadrius pallidus	Chestnut-banded Plover		Near threatened

Charadrius pecuarius	Kittlitz"s Plover		
Charadrius tricollaris	Three-banded Plover		
Vanellus armatus	Blacksmith Lapwing		
Recurvirostra avosetta	Pied Avocet		
Himantopus	Black-winged Stilt		
Burhinus capensis	Spotted Thick-knee		
Cursorius rufus	Burchell"s Courser		
Rhinoptilus africanus	Double-banded Courser		
Larus dominicanus	Kelp Gull		
Larus cirrocephalus	Grey-headed Gull		
Larus hartlaubii	Hartlaub"s Gull		Endemic
Sterna bergii	Swift Tern		
Sterna balaenarum	Damara Tern	Endemic; Endangered	Near threatened; Breeding endemic
Chlidonias hybridus	Whiskered Tern		
Pterocles namaqua	Namaqua Sandgrouse		Near endemic
Pterocles bicinctus	Double-banded Sandgrouse		Near endemic
Columba guinea	Speckled Pigeon		
Columba livea	Rock Dove		
Streptopelia capicola	Cape Turtle Dove		
Streptopelia senegalensis	Laughing Dove		
Streptopelia capicola	Cape Turtle-Dove		
Oena capensis	Namaqua Dove		
Agapornis roseicollis	Rosy-faced Lovebird	Endemic	Near endemic
Corythaixoides concolor	Grey Go-away-bird		
Tyto alba	Barn Owl		
Otus leucotis	Southern White-facedScops-Owl		

Glaucidium perlatum	Pearl-spotted Owlet		
Bubo africanus	Spotted Eagle Owl		
Bubo lacteus	Giant Eagle Owl		
Caprimulgus tristigma	Freckled Nightjar		
Apus bradfieldi	Bradfield"s Swift		Near endemic
Colius	White-backed Mousebird		Endemic
Urocolius indicus	Red-faced Mousebird		
Ceryle rudis	Pied Kingfisher		
Merops hirundineus	Swallow-tailed Bee-eater		
Upupa epops	Hoopoe		
Phoeniculus cyanomelas	Scimitar-billed Woodhoopoe		
Tockus monteiri	Monteiro"s Hornbill	Endemic	
Tockus nasutus	African Grey Hornbill		
Lybius leucomelas	Pied Barbet		
Dendropicos fuscescens	Cardinal Woodpecker		
Mirafra sabota	Sabota Lark		

Mirafra curvirostris	Long-billed Lark		
Calendulauda erythrochlamys	Dune Lark	Endemic	Endemic
Chersomanes albofasciata	Spike-heeled Lark		Near endemic
Calandrella cinerea	Red-capped Lark		
Alauda starki	Stark"s Lark		Endemic
Ammomanopsis grayi	Gray"s Lark	Endemic	Near endemic
Certhilauda subcoronata	Karoo Long-billed Lark		Endemic
Eremopterix verticalis	Grey-backed Sparrowlark		Near endemic
Hirundo fuligula	Rock Martin		
Riparia paludicola	Brown-throated Martin		
Dicrurus adsimilis	Fork-tailed Drongo		
Corvus capensis	Cape Crow		
Corvus albus	Pied Crow		
Parus cinerascens	Ashy Tit		Near endemic
Anthoscopus minutes	Cape Penduline Tit		Near endemic
Turdoides bicolour	Pied Babbler		
Pycnonotus nigricans	African Red-eyed Bulbul		Near endemic
Monticola brevipes	Short-toed Rock Thrush		
Namibornis herero	Herero Chat	Endemic	Near endemic
Oenanthe monticola	Mountain Wheatear		Near endemic
Cercomela familiaris	Familiar Chat		
Cercomela tractrac	Tractrac Chat		Near endemic
Cercomela schlegelii	Karoo Chat		Near endemic
Myrmecocichla formicivora	Ant-eating Chat		Endemic
Erythropygia paena	Kalahari Robin		
Parisoma subcaeruleum	Chestnut-vented Tit-Babbler		Near endemic
Parisoma layardi	Layard"s Tit-Babbler		Endemic
Zosterops pallidus	Orange River White-eye		Endemic
Sylvietta rufescens	Long-biled Crombec		
Eremomela icteropygialis	Yellow-bellied Eremomela		
Eremomela gregalis	Karoo Eremomela		
Acrocephalus baeticatus	African Reed-Warbler		
Acrocephalus gracilirostris	Lesser Swamp-Warbler		
Cisticola aridulus	Desert Cisticola		
Cisticola subruficapilla	Grey-backed Cisticola		Near endemic
Cisticola juncidis	Zitting Cisticola		
Prinia flavicans	Black-chested Prinia		
Melaenornis mariquensis	Marico Flycatcher		Near endemic
Bradornis infuscatus	Chat Flycatcher		Near endemic
Muscicapa striata	Spotted Flycatcher		
Batis pririt	Pririt Batis		Near endemic

Motacilla capensis	Cape Wagtail		
Anthus navaeseelandiae	Richard"s Pipit		
Anthus similes	Long-billed Pipit		
Anthus vaalensis	Buffy Pipit		
Tchagra australis	Brown-crowned Tchagra		
Lanius collaris	Common Fiscal		
Laniarius atrococcineus	Crimson-breasted Shrike		Near endemic
Nilaus afer	Brubru		
Telophorus zeylonus	Bokmakierie		Near endemic
Creatophora cinerea	Wattled Starling		
Lamprotornis nitens	Cape Glossy Starling		
Onychognathus nabouroup	Pale-winged Starling		Near endemic
Chalcomitra senegalensis	Scarlet-chested Sunbird		
Nectarinia mariquensis	Marico Sunbird		
Nectarinia fusca	Dusky Sunbird		Near endemic
Passer domesticus	House Sparrow		
Passer motitensis	Great Sparrow		Near endemic
Passer melanurus	Cape Sparrow		Near endemic
Passer griseus	Southern Grey-headedSparrow		
Sporopipes squamifrons	Scaly-feathered Finch		Near endemic
Plocepasser mahali	White-browed Sparrow-Weaver		
Philetairus socius	Sociable Weaver		Endemic
Ploceus velatus	Southern Masked Weaver		
Quelea	Red-billed Quelea		
Euplectes orix	Southern Red Bishop		
Estrilda erythronotos	Black-faced Waxbill		
Estrilda astrild	Common Waxbill		
Amadina erythrocephala	Red-headed Finch		Near endemic
Vidua regia	Shaft-tailed Whydah		
Serinus alario	Black-headed Canary		
Serinus flaviventris	Yellow Canary		Near endemic
Crithagra atrogulariis	Black-throated Canary		
Serinus albogularis	White-throated Canary		Near endemic
Emberiza capensis	Cape Bunting		Near endemic
Emberiza tahapisi	Cinnamon-breasted Bunting		
Emberiza impetuani	Lark-like Bunting		Near endemic