

APPENDIX E

DESCRIPTION OF THE BIOPHYSICAL ENVIRONMENT

E.1 Locality

E.2 Climatic Figures

E.3. Geological and Lithological Map

E.4 Water Sources and Topographical Map

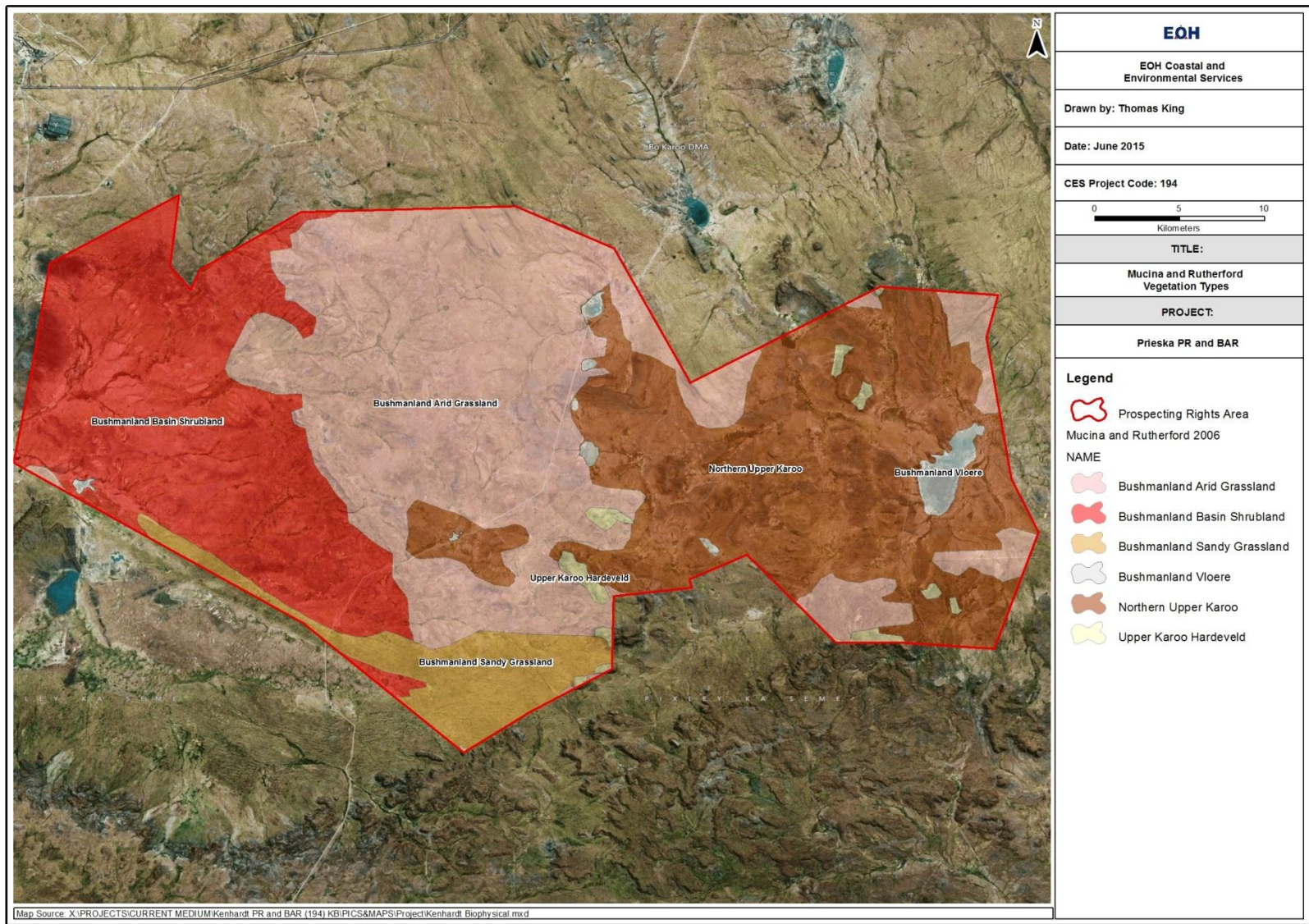
E.5 Vegetation Map as defined by Mucina &Rutherford (2009)

E.6 Plant species list likely to occur in the area

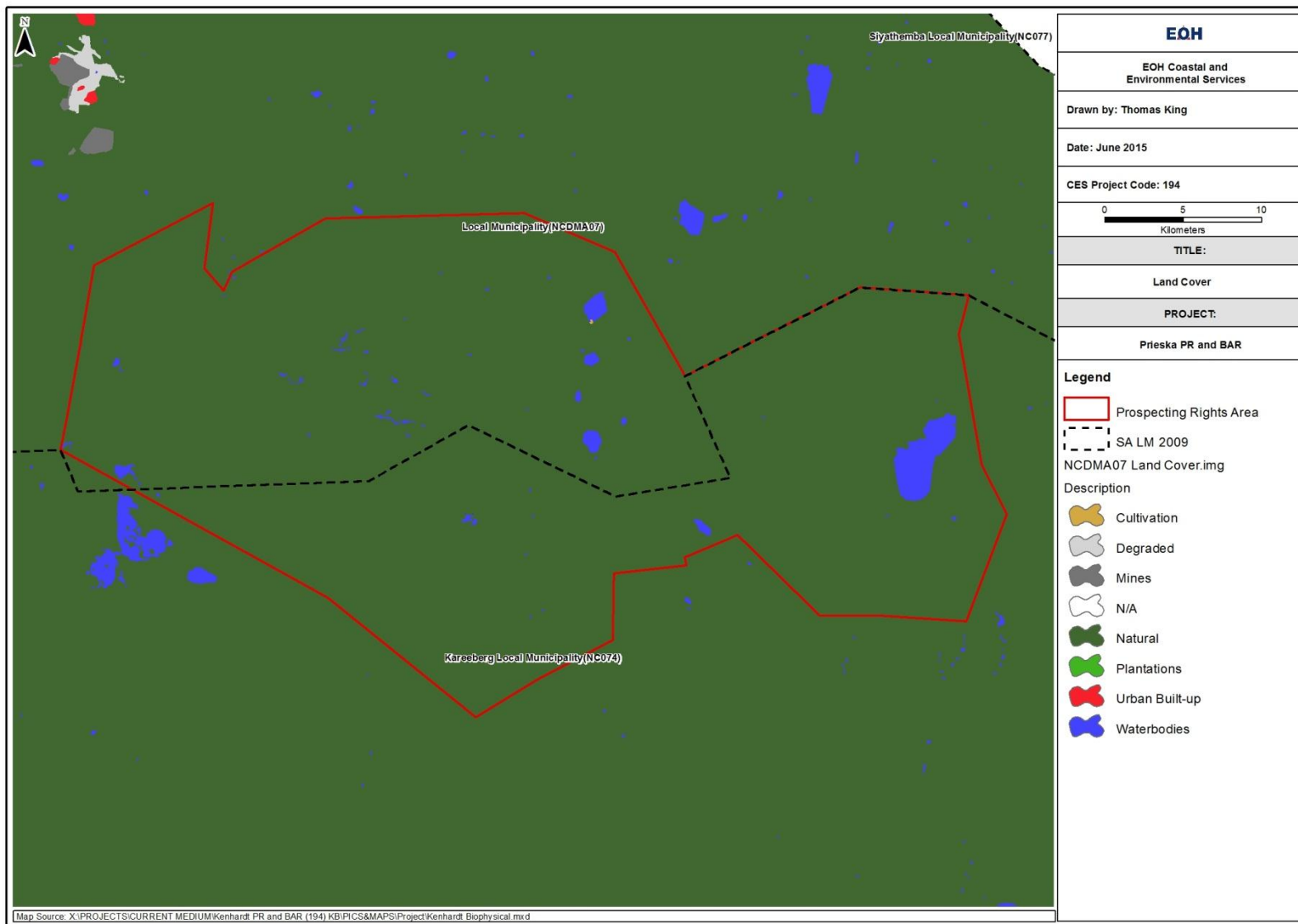
E.7 Faunal Species list likely to occur in the area

E.8 Plates

Vegetation Map as defined by Mucina & Rutherford (2009)



Landcover Map



Threatened Species that are likely to occur within the study site according to SIBIS (IUCN and NATIONAL STATUS), NEMBA AND PNCO

Family	Scientific Name	SA Red Data List
Poaceae	<i>Perotis patens</i>	Least Concern
Capparaceae	<i>Maerua edulis</i>	Near Endangered
Capparaceae	<i>Boscia foetida</i>	Least Concern
Capparaceae	<i>Cleome angustifolia</i>	Least Concern
Capparaceae	<i>Cleome hirta</i>	Least Concern
Poaceae	<i>Enapogon cenchroides</i>	Least Concern
Poaceae	<i>Echinochloa holubii</i>	Least Concern
Poaceae	<i>Melinis repens</i>	Least Concern
Poaceae	<i>Setaria pumila</i>	Least Concern
Poaceae	<i>Sporobolus festivus</i>	Least Concern
Poaceae	<i>Tragus berteronianus</i>	Least Concern
Poaceae	<i>Digitaria eriantha</i>	Least Concern
Poaceae	<i>Digitaria perrottetii</i>	Least Concern
Poaceae	<i>Aristida congesta</i>	Least Concern
Poaceae	<i>Panicum heterostachyum</i>	Least Concern
Poaceae	<i>Panicum maximum</i>	Least Concern
Poaceae	<i>Stipagrostis uniplumis</i>	Least Concern
Poaceae	<i>Pogonarthria squarrosa</i>	Least Concern
Poaceae	<i>Dactyloctenium giganteum</i>	Least Concern
Poaceae	<i>Eragrostis viscosa</i>	Least Concern
Poaceae	<i>Eragrostis biflora</i>	Least Concern
Poaceae	<i>Eragrostis lehmanniana</i>	Least Concern
Poaceae	<i>Eragrostis superba</i>	Least Concern
Poaceae	<i>Brachiaria deflexa</i>	Least Concern
Boraginaceae	<i>Heliotropium Isonii</i>	Least Concern
Boraginaceae	<i>Heliotropium ciliatum</i>	Least Concern
Poaceae	<i>Chloris roxburghiana</i>	Least Concern
Rubiaceae	<i>Canthium setiflorum</i>	Least Concern
Rubiaceae	<i>Richardia scabra</i>	Near Endangered
Rubiaceae	<i>Pavetta catophylla</i>	Least Concern
Rubiaceae	<i>Lagynias dryadum</i>	Least Concern
Rubiaceae	<i>Tricalysia junodii</i>	Least Concern
Burseraceae	<i>Commiphora africana</i>	Least Concern
Boraginaceae	<i>Ehretia amoena</i>	Least Concern
Boraginaceae	<i>Ehretia obtusifolia</i>	Least Concern
Burseraceae	<i>Commiphora glandulosa</i>	Least Concern
Burseraceae	<i>Commiphora vimia</i>	Least Concern
Convolvulaceae	<i>Ipomoea magnusiana</i>	Least Concern
Lamiaceae	<i>Acrotome inflata</i>	Least Concern
Lamiaceae	<i>Aeollanthus glectus</i>	Least Concern
Lamiaceae	<i>Endostemon tenuiflorus</i>	Least Concern
Lamiaceae	<i>Leucas glabrata</i>	Least Concern
Lamiaceae	<i>Syncolostemon cascens</i>	Least Concern
Lamiaceae	<i>Syncolostemon bracteosus</i>	Least Concern
Amaranthaceae	<i>Psilotrichum scleranthum</i>	Least Concern
Amaranthaceae	<i>Pupalia lappacea</i>	Least Concern

Family	Scientific Name	SA Red Data List
Amaranthaceae	Amaranthus hybridus	Near Endangered
Malvaceae	Melhania acuminata	Least Concern
Malvaceae	Waltheria indica	Least Concern
Malvaceae	Hermannia modesta	Least Concern
Cucurbitaceae	Citrullus lanatus	Least Concern
Celastraceae	Hippocratea africana	Near Endangered
Moraceae	Ficus sur	Least Concern
Moraceae	Ficus sycomorus	Least Concern
Cucurbitaceae	Momordica balsamina	Least Concern
Cucurbitaceae	Coccinia rehmannii	Least Concern
Phytolaccaceae	Rivina humilis	Near Endangered
Strychnaceae	Strychnos spinosa	Least Concern
Strychnaceae	Strychnos decussata	Least Concern
Gisekiaceae	Gisekia africana	Near Endangered
Combretaceae	Terminalia prunioides	Least Concern
Combretaceae	Combretum collinum	Least Concern
Combretaceae	Combretum mossambicense	Least Concern
Nyctaginaceae	Commicarpus pilosus	Least Concern
Fabaceae	Xanthocercis zambesiaca	Least Concern
Asphodelaceae	Astroloba congesta	Least Concern
Malvaceae	Abutilon hirtum	Least Concern
Fabaceae	Elephantorrhiza burkei	Least Concern
Cyperaceae	Bulbostylis hispidula	Least Concern
Cyperaceae	Cyperus zollingeri	Least Concern
Cyperaceae	Cyperus capensis	Least Concern
Cyperaceae	Cyperus chersinus	Least Concern
Malvaceae	Hibiscus caesius	Near Endangered
Malvaceae	Hibiscus coddii	Least Concern
Malvaceae	Hibiscus dongolensis	Least Concern
Malvaceae	Hibiscus engleri	Least Concern
Malvaceae	Hibiscus meyeri	Least Concern
Malvaceae	Gossypium herbaceum	Least Concern
Fabaceae	Desmodium velutinum	Least Concern
Solanaceae	Datura inoxia	Near Endangered
Fabaceae	Albizia forbesii	Least Concern
Orchidaceae	Habenaria transvaalensis	Least Concern
Solanaceae	Solanum catombelense	Least Concern
Solanaceae	Solanum lichtensteinii	Least Concern
Fabaceae	Zornia glochidiata	Least Concern
Asteraceae	Geigeria burkei	Least Concern
Asteraceae	Psiadia punctulata	Least Concern
Asteraceae	Flaveria bidentis	Near Endangered
Fabaceae	Indigofera trita	Least Concern
Pedaliaceae	Dicerocaryum secioides	Least Concern
Pedaliaceae	Ceratotheca saxicola	Rare
Pedaliaceae	Sesamothamnus lugardii	Least Concern
Fabaceae	Indigofera adenoides	Least Concern
Fabaceae	Crotalaria piscarpa	Least Concern
Fabaceae	Indigofera vicioides	Least Concern

Family	Scientific Name	SA Red Data List
Plumbaginaceae	Plumbago zeylanica	Near Endangered
Fabaceae	Indigofera rhytidocarpa	Least Concern
Fabaceae	Indigofera rhytidocarpa	Near Endangered
Acanthaceae	Justicia protracta	Least Concern
Turnear Endangeredraceae	Tricliceras longepedunculatum	Least Concern
Olacaceae	Olax dissitiflora	Least Concern
Crassulaceae	Kalanchoe lanceolata	Least Concern
Portulacaceae	Portulaca quadrifida	Least Concern
Portulacaceae	Portulaca grandiflora	Least Concern
Sapindaceae	Cardiospermum corindum	Least Concern
Lemnaceae	Lemna aequinoctialis	Least Concern
Fabaceae	Senna petersiana	Least Concern
Acanthaceae	Mochma debile	Least Concern
Acanthaceae	Blepharis inaequalis	Least Concern
Acanthaceae	Megalochlamys kenyensis	Least Concern
Acanthaceae	Barleria affinis	Least Concern
Fabaceae	Tephrosia purpurea	Least Concern
Annonaceae	Uvaria gracilipes	Least Concern
Fabaceae	Afzelia quanzensis	Least Concern
Rhamnaceae	Berchemia zeyheri	Least Concern
Lamiaceae	Vitex patula	Least Concern
Verbenaceae	Lantana rugosa	Least Concern
Fabaceae	Indigastrium costatum	Least Concern
Fabaceae	Stylosanthes fruticosa	Least Concern
Euphorbiaceae	Acalypha indica	Least Concern
Euphorbiaceae	Euphorbia opolymoides	Least Concern
Anacardiaceae	Searsia gueinzii	Least Concern
Euphorbiaceae	Jatropha spicata	Least Concern
Phyllanthaceae	Phyllanthus macranthus	Least Concern
Picrodendraceae	Androstachys johnsonii	Least Concern
Phyllanthaceae	Bridelia micrantha	Least Concern
Malvaceae	Grewia hexamita	Least Concern
Malvaceae	Grewia tenax	Least Concern
Malvaceae	Grewia bicolor	Least Concern
Malvaceae	Corchorus trilocularis	Near Endangered
Malvaceae	Corchorus asplenifolius	Least Concern
Malvaceae	Corchorus confusus	Least Concern
Malvaceae	Corchorus kirkii	Least Concern
Malvaceae	Grewia villosa	Least Concern
Malvaceae	Triumfetta rhomboidea	Least Concern
Icacinaceae	Pyrenacantha kaurabassana	Least Concern
Meliaceae	Ekebergia capensis	Least Concern

Faunal Species of Conservation Concern that may be found within the study area.

Common Name	Scientific Name	Conservation Status
Amphibians		
Common rain frog or Bushveld rain frog	<i>Breviceps adspersus</i>	Least Concern (SAFAP, 2012)
Northern Pygmy Toad	<i>Bufo fenoulheti</i>	Least Concern (SAFAP, 2012)
Eastern olive toad	<i>Bufo garmani</i>	Least Concern (SAFAP, 2012)
Hallowell's toad, the flat-backed toad, and the striped toad	<i>Bufo maculatus</i>	Least Concern (SAFAP, 2012)
Marbled snout-burrower	<i>Hemisus marmoratus</i>	Least Concern (SAFAP, 2012)
Angola river frog or common river frog	<i>Afrana angolensis</i>	Least Concern (SAFAP, 2012)
Müller's platanna	<i>Xenopus muelleri</i>	Least Concern (SAFAP, 2012)
Grey foam tree frog or Southern foam tree frog	<i>Chiromantis xerampelina</i>	Least Concern (SAFAP, 2012)
Segal Running Frog	<i>Kassina seNear Endangeredgalensis</i>	Least Concern (SAFAP, 2012)
Banded rubber frog	<i>Phrynomantis bifasciatus</i>	Least Concern (SAFAP, 2012)
Anchieta's ridged frog or plain grass frog	<i>Ptychadena anchietae</i>	Least Concern (SAFAP, 2012)
Common sand frog	<i>Tomopterna cryptotis</i>	Least Concern (SAFAP, 2012)
Marbled sand frog	<i>Tomopterna marmorata</i>	Least Concern (SAFAP, 2012)
Reptiles		
Peters' Ground Agama	<i>Agama armata</i>	Least Concern (SARCA 2014)
Rhombic Egg-eater	<i>Dasypeltis scabra</i>	Least Concern (SARCA 2014)
Zimbabwe Flat Lizard	<i>Platysaurus intermedius</i>	Least Concern (SARCA 2014)
Black Mamba	<i>Dendroaspis polylepis</i>	Least Concern (SARCA 2014)
Zimbabwe Flat Gecko	<i>Afroedura transvaalica</i>	Least Concern (SARCA 2014)
Tiger Gecko	<i>Pachydactylus tigrinus</i>	Least Concern (SARCA 2014)
Common Barking Gecko	<i>Ptenopus garrulus</i>	Least Concern (SARCA 2014)
Yellow-throated Plated Lizard	<i>Gerrhosaurus flavigularis</i>	Least Concern (SARCA 2014)
Bushveld Lizard	<i>Heliobolus lugubris</i>	Least Concern (SARCA 2014)
Sundevall's Writhing Skink	<i>Mochlus sundevallii</i>	Least Concern (SARCA 2014)
Limpopo Dwarf Burrowing Skink	<i>Scelotes limpopoensis</i>	Least Concern (SARCA 2014)
Rainbow Skink	<i>Trachylepis margaritifer</i>	Least Concern (SARCA 2014)
Variable Skink	<i>Trachylepis varia</i>	Least Concern (SARCA 2014)
Mammals		
The Black Rhinoceros	<i>Diceros bicornis</i>	Critically Endangered (Red Data List, 2012)
Riverine Rabbit	<i>Bunolagus monticularis</i>	Critically Endangered (Red Data List, 2012)
Birds		
Martial Eagle	<i>Polemaetus bellicosus</i>	Near Endangeredar ThreatNear Endangeredd
Bateleur	<i>Terathopius ecaudatus</i>	Near Endangeredar ThreatNear Endangeredd

Full List of Bird Species of Conservation Concern that may be found within the study area.

Common Name	Scientific Name	Red List status
African Black-headed Oriole, Black-headed Oriole, Eastern Black-headed Oriole	<i>Oriolus larvatus</i>	Least Concern
African Golden Oriole, African Golden-Oriole	<i>Oriolus auratus</i>	Least Concern
African Grey Hornbill	<i>Tockus nasutus</i>	Least Concern
African Jacana	<i>Actophilornis africanus</i>	Least Concern
African Masked Weaver, Southern Masked-weaver, Southern Masked Weaver, Southern Masked-Weaver	<i>Ploceus velatus</i>	Least Concern

African Palm-swift, African Palm Swift, African Palm-Swift, Palm Swift	<i>Cypsiurus parvus</i>	Least Concern
African Pendulitit, Grey Pendulitit	<i>Anthoscopus caroli</i>	Least Concern
African Pied Wagtail, African Wagtail	<i>Motacilla aguimp</i>	Least Concern
African Rock Martin, Rock Martin	<i>Hirundo fuligula</i>	Least Concern
Arrow-marked Babbler	<i>Turdoides jardi</i> Near Endangered	Least Concern
Barn Swallow, European Swallow, Swallow	<i>Hirundo rustica</i>	Least Concern
Bateleur	<i>Terathopius ecaudatus</i>	Near Endangered at Threat Near Endanger ed
Black Tit, Southern Black Tit	<i>Parus niger</i>	Least Concern
Black-backed Puffback, Southern Puffback	<i>Dryoscopus cubla</i>	Least Concern
Black-crowd Tchagra	<i>Tchagra se</i> Near Endanger ed	Least Concern
Black-headed Heron	<i>Ardea melanocephala</i>	Least Concern
Blacksmith Lapwing, Blacksmith Plover	<i>Va</i> Near Endanger ed	Least Concern
Black-winged Stilt	<i>Himantopus himantopus</i>	Least Concern
Blue-breasted Cordonbleu, Blue Waxbill	<i>Uraeginthus angolensis</i>	Least Concern
Bronze-winged Courser	<i>Rhinoptilus cha</i> Least Concern	Least Concern
Brown-crowd Tchagra, Brown-headed Tchagra	<i>Tchagra australis</i>	Least Concern
Brubru	<i>Nilaus afer</i>	Least Concern
Cape Crombec, Long-billed Crombec	<i>Sylvietta rufescens</i>	Least Concern
Cape Glossy Starling, Cape Starling, Red-shouldered Glossy-starling, Red-shouldered Glossy-Starling	<i>Lamprotornis nitens</i>	Least Concern
Cape Turtle Dove, Ring-Necked Dove	<i>Streptopelia capicola</i>	Least Concern
Cardinal Woodpecker	<i>Dendropicus fuscescens</i>	Least Concern
Cattle Egret	<i>Bubu</i> Least Concern	Least Concern
Common Greenshank, Greenshank	<i>Tringa</i> Near Endanger ed	Least Concern
Common Sandpiper	<i>Actitis hypoleucos</i>	Least Concern
Common Scimitarbill, Common Scimitar-bill, Scimitarbill	<i>Rhinopomastus cyanomelas</i>	Least Concern
Common Waxbill	<i>Estrilda astrild</i>	Least Concern
Common Whitethroat, Whitethroat	<i>Sylvia communis</i>	Least Concern
Crimson-breasted Gonolek, Crimson-breasted Shrike	<i>Laniarius atrococci</i> Near Endanger ed	Least Concern
Crowd Lapwing, Crowd Plover	<i>Va</i> Near Endanger ed	Least Concern
Cut-throat, Cut-throat Finch	<i>Amadina fasciata</i>	Least Concern
Dark Chanting-goshawk, Dark Chanting Goshawk, Dark Chanting-Goshawk	<i>Melierax metabates</i>	Least Concern
Double-banded Sandgrouse	<i>Pterocles bicinctus</i>	Least Concern
Eastern Paradise-whydah, Long-tailed Paradise Whydah, Long-tailed Paradise Widow	<i>Vidua paradisaea</i>	Least Concern
Egyptian Goose	<i>Alopochen aegyptiaca</i>	Least Concern
Emerald-spotted Dove, Emerald-spotted Wood-dove, Emerald-spotted Wood Dove, Emerald-spotted Wood-Dove	<i>Turtur cha</i> Least Concern	Least Concern
Ethiopian Boubou, Tropical Boubou	<i>Laniarius aethiopicus</i>	Least Concern
Eurasian Golden Oriole, Eurasian Golden-Oriole, European Golden Oriole, Golden Oriole	<i>Oriolus oriolus</i>	Least Concern
Fiery-Necked Nightjar	<i>Caprimulgus pectoralis</i>	Least Concern
Fork-tailed Drongo	<i>Dicrurus adsimilis</i>	Least Concern

Golden-tailed Woodpecker	<i>Campethera abingoni</i>	Least Concern
Gray Heron, Grey Heron	<i>Ardea ciNear Endangeredrea</i>	Least Concern
Greater Blue-eared Glossy-starling, Greater Blue-eared Glossy-Starling, Greater Blue-eared Starling	<i>Lamprotornis chalybaeus</i>	Least Concern
Green Woodhoopoe, Green Wood Hoopoe, Red-billed Wood Hoopoe	<i>Phoeniculus purpureus</i>	Least Concern
Green-backed Heron, Striated Heron	<i>Butorides striata</i>	Least Concern
Green-winged Pytilia, Melba Finch	<i>Pytilia melba</i>	Least Concern
Grey Go-away-bird, Grey Lourie	<i>Corythaixoides concolor</i>	Least Concern
Grey-headed Bushshrike, Grey-headed Bush-shrike, Grey-headed Bush Shrike	<i>Malaconotus blanchoti</i>	Least Concern
Hamerkop	<i>Scopus umbretta</i>	Least Concern
House Swift, Little Swift	<i>Apus affinis</i>	Least Concern
Jacobin Cuckoo, Pied Cuckoo	<i>Clamator jacobinus</i>	Least Concern
Klaas's Cuckoo	<i>Chrysococcyx klaas</i>	Least Concern
Lesser Masked Weaver	<i>Ploceus intermedius</i>	Least Concern
Lesser Striped-swallow, Lesser Striped Swallow, Lesser Striped-Swallow	<i>Hirundo abyssinica</i>	Least Concern
Lilac-breasted Roller	<i>Coracias caudatus</i>	Least Concern
Little Bee-eater	<i>Merops pusillus</i>	Least Concern
Marabou, Marabou Stork	<i>Leptoptilos crumeniferus</i>	Least Concern
Marico Flycatcher, Mariqua Flycatcher	<i>Bradornis mariquensis</i>	Least Concern
Marsh Sandpiper	<i>Tringa stagnatilis</i>	Least Concern
Martial Eagle	<i>Polemaetus bellicosus</i>	Near Endangeredar ThreatNear Endangeredd
Meves's Glossy-starling, Meves's Glossy-Starling, Meves's Starling, Southern Long-tailed Starling	<i>Lamprotornis mevesii</i>	Least Concern
Mosque Swallow	<i>Hirundo seNear Endangeredgalensis</i>	Least Concern
Namaqua Dove	<i>Oena capensis</i>	Least Concern
Olive-tree Warbler	<i>Hippolais olivetorum</i>	Least Concern
Orange-breasted Bush Shrike, Sulphur-breasted Bushshrike, Sulphur-breasted Bush-shrike	<i>Telophorus sulfureopectus</i>	Least Concern
Pale Chanting-goshawk, Pale Chanting Goshawk, Pale Chanting-Goshawk	<i>Melierax canorus</i>	Least Concern
Pearl-spotted Owlet	<i>Glaucidium perlatum</i>	Least Concern
Red-backed Shrike	<i>Lanius collurio</i>	Least Concern
Red-billed Buffalo-weaver, Red-billed Buffalo Weaver, Red-billed Buffalo-Weaver	<i>Bubalornis niger</i>	Least Concern
Red-billed Firefinch	<i>Lagonosticta seNear Endangeredgala</i>	Least Concern
Red-billed Hornbill	<i>Tockus erythrorhynchus</i>	Least Concern
Red-billed Quelea	<i>Quelea quelea</i>	Least Concern
Red-chested Cuckoo	<i>Cuculus solitarius</i>	Least Concern
Red-eyed Dove	<i>Streptopelia semitorquata</i>	Least Concern
Red-faced Mousebird	<i>Urocolius indicus</i>	Least Concern
Red-headed Weaver	<i>Anaplectes rubriceps</i>	Least Concern
Southern Black Flycatcher, Southern Black-Flycatcher	<i>Melaenornis pammelaina</i>	Least Concern
Southern Pied-babbler, Southern Pied Babbler, Southern Pied-Babbler	<i>Turdoides bicolor</i>	Least Concern
Southern White-crowd Shrike, White-crowd Shrike	<i>Eurocephalus anguimans</i>	Least Concern

Southern Yellow-billed Hornbill	<i>Tockus leucomelas</i>	Least Concern
Speckled Mousebird	<i>Colius striatus</i>	Least Concern
Spotted Flycatcher	<i>Muscicapa striata</i>	Least Concern
Terrestrial Brownbul, Terrestrial Bulbul	<i>Phyllastrephus terrestris</i>	Least Concern
Three-banded Plover	<i>Charadrius tricollaris</i>	Least Concern
Village Weaver	<i>Ploceus cucullatus</i>	Least Concern
Violet-backed Starling	<i>Cinnyricinclus leucogaster</i>	Least Concern
Wahlberg's Eagle	<i>Aquila wahlbergi</i>	Least Concern
White-faced Duck, White-faced Whistling-duck, White-faced Whistling Duck, White-faced Whistling-Duck	<i>Dendrocygna viduata</i>	Least Concern
White-fronted Plover	<i>Charadrius marginatus</i>	Least Concern
Willow Warbler	<i>Phylloscopus trochilus</i>	Least Concern
Wire-tailed Swallow	<i>Hirundo smithii</i>	Least Concern
Wood Sandpiper	<i>Tringa glareola</i>	Least Concern
Yellow-bellied Greenbul	<i>Chlorocichla flaviventris</i>	Least Concern

General view of the Site



