

BIODIVERSITY MANAGEMENT PLAN

FOR

VILANCULOS COASTAL WILDLIFE SANCTUARY

(SOFALA PROVINCE, REPUBLIC OF MOZAMBIQUE)

VOLUME 3

ANNOTATED SPECIES LISTS

March 2003

**VILANCULOS COASTAL WILDLIFE SANCTUARY PLANNING TEAM
29 HOMESTEAD ROAD, RIVONIA, 2128, SOUTH AFRICA**

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For:

VILANCULOS COASTAL WILDLIFE SANCTUARY (PTY) LTD

and

**GLOBAL ENVIRONMENT FACILITY
(PDF B contract)**

BIODIVERSITY MANAGEMENT PLAN

PLAN LAYOUT

VOLUME 1: CONDENSED PLAN

Available as hard copy and on CD (attached)

VOLUME 2: THE BIODIVERSITY MANAGEMENT PLAN

Available on CD (attached)

VOLUME 3: ANNOTATED SPECIES LISTS (THIS DOCUMENT)

Only available on CD

ANNEX 1: VEGETATION

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BIODIVERSITY MANAGEMENT PLAN

VOLUME 3

SPECIES LISTS

INTRODUCTION

The species lists that follow are all provisional and will be expanded after the planned follow-up surveys have been undertaken. In all instances the specialists who undertook the introductory surveys (Dr Niels Jacobsen for mammals, reptiles, amphibians and plants and Dr Warwick Tarboton for birds) were hamstrung firstly by a lack of time and secondly by the fact that the surveys were undertaken in mid-winter. Some species are also still in the process of being identified.

A species list was not compiled for fresh water organisms, although reference is made in the text (see Volume 2 and the specialist report in Volume 4) to the species that were encountered and identified. The same applies to marine species, although extensive reference is made to those species that were identified on an incidental basis by the marine specialist (Prof Mike Bruton; refer to Volume 2 and the specialist report in Volume 4).

ANNEX 1. AN ANNOTATED SPECIES LIST OF THE VEGETATION OF THE VILANCULOS COASTAL WILDLIFE SANCTUARY

PTERIDOPHYTA

Lycopodiaceae

LYCOPODIELLA (L.) Pic. Serm.

caroliniana Club moss. Perennial stoloniferous herb only recorded from the marsh fringing the sanctuary in the south west.

Dennstaedtiaceae

PTERIDIUM Gled.

aquilinum (L.) Kuhn. Bracken fern. Perennial fern only recorded from the vicinity of the Jane marsh.

Adiantaceae

ACROSTICHUM L.

aureum L. Swamp fern, a robust evergreen fern with leaves up to 2 m high, mostly

found on the landward side of salt marshes and in mangrove communities.

CHEILANTHES Schwartz

viridis (Forssk) Schwartz var. *viridis* An evergreen perennial herb, rare in the sanctuary but widespread elsewhere.

Polypodiaceae

MICROSORIUM Link.

scolopendria Brum. f. A perennial stoloniferous herb growing commonly under the shade of trees and in bushclumps.

Thelypteridaceae

THELYPTERIS Schmidel.

interrupta (Willd.) K. Iwats. A common, evergreen stoloniferous swamp or marsh fern occurring throughout the sanctuary in suitable habitat.

Blechnaceae

STENOCHLAENA J. Sm.

tenuifolia (Desv.) T. Moore. An evergreen climbing, stoloniferous fern usually associated with marshy habitats.

GYMNOSPERMAE

Zamiaceae

ENCEPHALARTOS Lehm.

ferox Bertol. f. Evergreen spiny-leaved cycad reaching its northernmost limits along the sanctuary's southern boundary. Recorded as Locally restricted and near threatened in the RDB (Golding in press).

MONOCOTYLEDONAE

Typhaceae

TYPHA L.

capensis (Rohrb) N.E. Br. Bulrush. A perennial rhizomatous herb, characteristic of more permanent swamps and pans.

Zannichelliaceae

THALASSODENDRON Den Hartog

ciliata (Forssk.) Den Hartog. A strap-leaved, long stemmed sea grass most prevalent in the shallow waters surrounding the peninsula and bay.

CYMODOCEA C.A. Koenig

serrulata (R.Br.) Aschers. & Magnus. A sessile to shortly stemmed rhizomatous herb forming extensive beds in the shallow waters of the estuary, together with other species .

HALODULE Endl.

uninervis (Forsk.) Aschers. A grass-like perennial marine herb with very narrow leaves growing in shallow water together with the previous species.

SYRINGODIUM

isoetifolium (Aschers) Dandy. An evergreen, perennial rhizomatous herb, growing submerged together with *Cymodocea serrulata* in the infralittoral zone.

Poaceae

ANDROPOGON L.

eucomus Nees. An uncommon white plumed grass of moist pan and marsh margins. Poor palatability.

huillensis Rendle. An uncommon tall grass restricted to moist soils around wetlands. Inflorescence turning white and feathery at maturity.

schirensis A. Rich. One of the dominant grasses of Miombo woodland in the sanctuary.

ARISTIDA L.

junciformis Trim. & Rupr. A tussocky grass associated with moist habitats and uncommon in the sanctuary. An increaser species and largely unpalatable.

stipitata Hack. An annual ruderal grass of sandy soils, widespread in the sanctuary, but uncommon, poor palatability, and which may increase under conditions of overgrazing.

sp. An uncommon grass occurring in open miombo woodland.

BRACHIARIA Grieseb.

humidicola (Rendle) Schweick. A common perennial evergreen stoloniferous grass usually found under the shade of trees and along the margins of bushclumps.

CENCHRUS L.

brownii Roem. & Schult.* Bristle grass. An annual ruderal grass of fallow lands, originating from Europe.

CYMBOPOGON Spreng.

excavatus (Hochst.) Stapf ex Burtt Davy. Turpentine grass. An uncommon, perennial and poorly palatable grass in open miombo woodland.

CYNODON Rich. ex Pers.

dactylon (L.) Pers. Quick grass. An evergreen rhizomatous matt-forming grass on disturbed soils. Increases under grazing pressure. Rhizomes important food for springhare, hares and other rodents. Uncommon in the sanctuary.

DACTYLOCTENIUM Willd.

australe Stend. Southern finger comb grass. Widespread but uncommon in disturbed areas, along roads in the sanctuary and along the coast.

gemminatum Hack. Finger comb grass. An annual ruderal grass most common along roads in the area.

DIGITARIA Heist.

sp. cf *debilis* (Desf.) Willd. An annual finger grass associated with cultivation.

eriantha Steud. Woolly finger grass. The most dominant stoloniferous and tussocky grass in miombo woodland in the sanctuary. Good fodder grass.

milanjiana (Rendle) Stapf. Perennial evergreen grass of secondary succession in miombo scrub.

ERAGROSTIS Beauv.

chapelierii (Kunth.) Nees. A perennial evergreen grass, locally gregarious and scattered in open miombo woodland.

sp. A perennial tussock grass mostly found in the eastern part of the sanctuary.

sp. An annual grass mostly found in fallow land and disturbed sites. Florets covered with reddish hairs, giving the inflorescence a reddish appearance.

HETEROPOGON Pers.

contortus (L.) Roem. & Schult. Tanglehead. An evergreen, palatable tussock grass

growing in well drained soils, often associated with disturbed conditions. Increases under conditions of disturbance.

HYPERTHELIA Clayton

dissoluta (Nees ex Steud.) Clayton. Yellow thatching grass. A tall evergreen tussock grass of poor palatability, frequently associated with well drained sandy soils. Increases under conditions of disturbance. Leaf bases fed on by Cane rats in the sanctuary.

IMPERATA Cirillo

cylindrica (L.) Reuschel. Cottonwool grass. A common evergreen rhizomatous grass forming dense stands under moist conditions. Usually associated with pan and marsh margins. Unpalatable.

ISCHAEMUM L.

fasciculatum Brongn. A common evergreen perennial grass usually associated with wet conditions forming monotypic communities around the perimeter of pans usually behind the sedges. Poor palatability.

LEERSIA Swartz

hexandra Swartz. A dense mat forming rhizomatous hydrophytic grass of marshes with good palatability.

MEGASTACHYA P.Beauv.

mucronata (Poir.) Beauv. A rare prostrate mat-forming grass growing in deep shade near Jane marsh.

MELINIS P. Beauv.

repens (Willd.) Ziska ssp. *repens* Natal red top. A common annual grass usually associated with agriculture and soil disturbances. Poor palatability.

PANICUM L.

aequinerve Nees. Forest buffalo grass. An annual, decumbent and scandent grass of thickets and secondary succession woodland.

deustum Thunb. An uncommon perennial grass growing inside bushclumps and thickets in the west of the peninsula. Seeds fed on by mannikins and waxbills.

maximum Jacq. Guinea grass. An important palatable but annual grass usually found under trees and along the margins of bushclumps, as well as in cultivated areas. Seeds also fed on by many birds.

sp. cf *schinzii* Hack. Land grass. An annual fine plumed grass mostly found around fallow lands.

PENNISETUM Rich.

glaucum (L.) R.Br. * Pearl millet. An annual grass cultivated for grain and ground to a meal. Remainder of plant used for fodder.

PEROTIS Aiton

patens Gand. Bottlebrush grass. A common annual but poorly palatable grass of miombo woodland and fallow lands.

SACCHARUM L.

officinarum L. * Sugarcane. A perennial evergreen tussock grass cultivated locally and still found occasionally in fallow lands.

SCHIZACHYRIUM Nees

sanguineum (Retz) Alst. Red autumn grass. A perennial tussock grass scattered in stands in open miombo woodland. Of low palatability to game. Culms used by locals to form grass mats around the wall of huts.

SORGHUM Moench

sp. * Sorghum. Cultivated for the production of grain for making meal and beer by the local people.

SPOROBOLUS R. Br.

fimbriatus (Trin.) Nees Dropseed. A common perennial tussock grass relatively

palatable but sparsely distributed, often along roads and in moist situations..
virginicus (L.) Kunth Seaside rush grass. A common perennial mat - forming grass growing along the upper littoral zone, usually under saline conditions.

STENOTAPHRUM Trin.

secundatum (Walt.) Kuntze. Buffalo grass. An uncommon perennial evergreen mat – forming grass. Used to form lawns around camps.

STIPAGROSTIS Nees

sp. A rare tussock grass only recorded in the sanctuary from the Spit, where it occurs singly and dispersed along the western side.

TRAGUS Haller

berteronianus Schult. Small carrot seed grass. An annual grass usually associated with fallow lands and disturbed conditions. An increaser species (Refer to text).

TRICHOLAENA Schrad.

monachne Blue seed grass. An annual or perennial tussock grass which occurs sporadically in open miombo woodland.

TRIRAPHIS R. Br.

schinzii A perennial, weak tussock grass growing throughout the miombo woodland in sandy soils. Of low palatability.

UROCHLOA P. Beauv.

panicoides Beauv. A prostrate annual grass usually associated with cultivation.

Cyperaceae

BULBOSTYLIS Kunth

hispidula (Vahl) R. Haines. A very common annual to perennial sedge widespread in miombo woodland throughout the sanctuary.

CLADIUM R. Br

mariscus R. Br. ssp. *jamaicense* “Jeka” A tall perennial tussock sedge growing semi-submerged in marshes and in pans in the sanctuary. The foliage is widely used as thatching material for huts.

CYPERUS Mich.

crassipes Vahl Strand sedge. A common perennial sedge growing singly or forming stands along the foremost dunes.

dives Delile An uncommon large tussock sedge growing in marshes and pans in the eastern part of the sanctuary.

esculentus L. A rhizomatous sedge of cultivation. Uncommon in the sanctuary.

margaritaceus Vahl A common perennial sedge of miombo woodland.

obtusiflorus Vahl Widespread in miombo woodland this perennial sedge is often associated with moister soils.

papyrus L. “Papyrus” A rare rhizomatous sedge found growing in marshes in the eastern part of the reserve.

prolifer Lam. Lesser papyrus. A common perennial evergreen rhizomatous sedge growing along the margins of pans and marshes or in shallow water.

sp. cf *marginatus* The most common perennial sedge throughout the sanctuary growing densest around the margins of pans and other waterbodies. Also grows dispersed in miombo woodland.

sp. cf *rupestris*. A small tussocky sedge growing scattered in sandy soils mostly in the eastern part of the sanctuary.

sp. A small, rhizomatous gregarious sedge recorded from salt marshes on both east and west sides of the peninsula.

sp. A small tufted sedge found along the margins of pans in miombo woodland.

Lemon-breasted canaries were recorded feeding on the flowers.

ELEOCHARIS R. Br.

acutangula (Roxb.) Schult. Rare in the sanctuary this perennial, triangular stemmed sedge usually grows in shallow water

FICINIA Schrad.

sp. cf *dasystachys* C.B. Clarke. A common tufted perennial sedge of open miombo woodland

FUIRENA Rottb.

sp. A large perennial square stemmed tufted sedge growing singly amongst other sedges around the perimeter of pans.

sp. A smaller cylindrical stemmed perennial sedge more rarely found than the previous species growing in the same zone around the perimeter of pans.

sp. A dwarf annual sedge growing closest to the water, germinating as the water recedes.

KYLLINGA Rottb.

alba Nees. A common dry land sedge, perennial and tufted, growing throughout the open miombo woodland.

MARISCUS Vahl

congestus (Vahl) C.B. Clarke. Mostly recorded from moist soils around the periphery of wetlands in the sanctuary.

dubius (Rottb.) Hutch. An uncommon but widespread perennial tufted dry land sedge in miombo woodland.

PYCREUS P. Beauv.

polystachyos (Rottb.) P. Beauv. A perennial sedge of moist margins of freshwater swamps.

sp. An uncommon mat-forming rhizomatous sedge observed at a seepage along the littoral zone of a pan.

SCHOENOPLECTUS (Rchb.) Palla

litoralis (Schrad.) Palla. A rhizomatous and gregarious perennial sedge of salt marshes, mostly recorded in the east adjacent to the estuary, especially in mangroves along the ecotone with Jane marsh.

SCLERIA P.J. Bergius

poiformis Retz. A robust, evergreen, broad-leaved rhizomatous sedge growing in pans and marshes in the sanctuary. Frequently totally dominates such sites forming monotypic stands.

Areaceae

COCOS L.

nucifera L. * Coconut palm. A common alien evergreen tree planted by the local people throughout the peninsula for food and other materials.

PHOENIX L.

reclinata Jacq. Wild date palm. A common evergreen tree of maritime scrub and lowlands. The apex of the tree is tapped to make palm wine or beer.

HYPHAENE Gaertn.

coriacea Gaertn. Lala palm. A common palm in the sanctuary, usually forming dense stands, particularly around the perimeter of pans but rarely reaching tree height. Together with the other species the leaves are utilized by the local people in weaving mats and other receptacles. The apices of the tree is tapped to make a palm wine or beer. The endemic Lemon-breasted canary has been recorded nesting at the base of the fan-shaped leaves.

Araceae

ZAMIOCULCAS Schott.

zamiifolius (Lodd.) Engl. A perennial deciduous herb of bushclumps and closed canopy woodland.

GONATOPUS Hook. f.

sp. cf *rhizomatosus* Bogn. & Oberm. A perennial herb of bushclumps in miombo woodland. Appears to be rare, as it was only observed once.

STYLOCHITON Lepr.

natalensis Schott. A solitary perennial herb widespread in miombo woodland and dune scrub throughout the peninsula

Flagellariaceae

FLAGELLARIA L.

guineensis Schumach. Scandent perennial grass-like herb with tendril tipped leaves usually growing in dune scrub and closed canopy woodland.

Xyridaceae

XYRIS L.

anceps Lam. A perennial tufted herb, gregarious, with leaves in fan, growing commonly along the medium to upper littoral zone around many pans.

sp. cf *gerrardii* N.E. Br. A large tussock herb reaching 550 mm in height, but more rare than the preceding species along the littoral margin of some pans.

Bromeliaceae

ANANAS Tourn. Ex L.

sativus Schult. * Pineapple. An alien perennial evergreen herb cultivated widely on the peninsula frequently remaining in fallow lands.

Commelinaceae

ANEILEMMA R. Br.

dregeanum Kunth. A perennial prostrate to erect semi-succulent herb with pale mauve flowers growing under the shade of trees and in bushclumps.

hockii De Willd. A tufted semi-succulent herb with slaty blue flowers widespread in miombo woodland.

COMMELINA L.

benghalensis L. A creeping fleshy, stoloniferous herb with blue flowers mostly growing in fallow and cultivated lands.

diffusa Burm. A common prostrate, fleshy herb with pale blue flowers widespread in miombo woodland.

erecta L. A widespread perennial semi-fleshy herb with pale blue flowers growing in miombo woodland.

sp. A prostrate herb with dark blue flowers recorded in fallow lands in the eastern sector of the Mazarette estate.

COLEOTRYPE C.B. Clarke

natalensis C.B. Clarke. A perennial rhizomatous erect herb with purple flowers usually found growing in the shade of bush clumps.

Juncaceae

JUNCUS (Tourn) L.

kraussii Hochst. Salt marsh juncus. Perennial evergreen rhizomatous and gregarious herb forming dense stands fringing the salt flats.

Colchicaceae

GLORIOSA L.

superba L. Flame lily. A perennial deciduous climbing herb with red and yellow flowers, widespread but uncommon throughout the miombo woodland.

Asphodelaceae

CHLOROPHYTUM Ker Gawl.

sp. cf *bowkeri* Bak. A robust erect perennial herb with leaves V – shaped and bordered with a thin brown line. Uncommon occurring mostly in the eastern half of the sanctuary in miombo woodland.

ALOE L.

chabaudii Schonl. A common succulent herb with a lax capitate inflorescence, rhizomatous, gregarious, and widespread throughout the reserve.

parvibracteata Schonl. A maculate leaved rhizomatous succulent herb, with a orange-pink to pink capitate inflorescence, uncommon in the western sector near the community harbour.

suffulta Reynolds. An uncommon, perennial succulent herb with long narrow maculate leaves growing solitary or in small groups in miombo woodland. A RDB species listed as data deficient.

Hyacinthaceae

ALBUCA L.

sp. A perennial geophyte growing in bushclumps in miombo woodland.

DIPCADI Medik.

sp. A deciduous perennial herb growing amongst stands of the salt grass *Sporobolus virginicus* at the edge of a salt marsh.

DRIMIOPSIS Lindl.

maculata Lindl. A rare geophyte in the area, recorded from one site in the extreme south of the sanctuary in closed canopy miombo woodland at the Jane marsh.

LEDEBOURIA Roth.

sp. A rare geophyte growing in open miombo woodland.

Agavaceae

AGAVE L.

sisalana Perrine * Sisal. An uncommon, alien, perennial, succulent, rhizomatous shrub, with tall flowers spikes, usually gregarious, growing in dense clumps, so far only recorded from the vicinity of “Baobab valley”, no doubt introduced perhaps as a hedge plant or for its fibrous leaves. .

Dracaenaceae

DRACAENA Vand. Ex L.

mannii Bak. (= *D. reflexa*). Small leaved dragon tree. A single immature individual

of this attractive semi-succulent shrub was seen in closed canopy miombo woodland along the southern boundary of Phase 1.

SANSEVIERIA Thunb.

metallica Giant sansevieria. A robust perennial, evergreen rhizomatous herb growing in bushclumps and dune scrub.

sp. cf *concinna* . Dune sansevieria. A small evergreen semi-succulent herb with an orange rhizome, growing in closed canopy miombo woodland and dune scrub.

Asparagaceae

ASPARAGUS L.

africanus Lam. Bush asparagus. An occasional woody perennial climbing herb scattered in open miombo woodland with bushclumps. Small white flowers are produced in any month from April to November.

densiflorus Kunth Cat's tail asparagus. A rare semi-prostrate perennial herb growing in dune thicket/ scrub, in shade.

falcatus L. Large forest asparagus. The most common asparagus in the sanctuary being mostly found in bushclumps and dune scrub. Appearances outside of thickets are a result of the effect of veld fires on bushclumps and thickets. An attractive but thorny asparagus with sprays of white flowers during the winter months and attractive red berries thereafter.

setaceus Kunth. A slender and dainty perennial bushclump and dune scrub asparagus, restricted to more sheltered areas than the previous species. Small white flowers are produced singly at the ends of branches

Smilacaceae

SMILAX L.

anceps Willd. A thorny perennial creeper of maritime scrub and adjacent open woodland mostly along the estuary but nowhere common.

Amaryllidaceae

CRINUM L.

macowanii Bak. An uncommon but widespread lily with umbels of white and pink flowers growing in open miombo woodland.

SCADOXUS Raf.

multiflorus (Martyn) Raf. A deciduous perennial herb of bushclumps and thickets with a round multi - flowered inflorescence usually produced during the summer months

Hypoxidaceae

HYPOXIS L.

sp. An uncommon geophyte found in marsh along the western border.

Dioscoreaceae

DIOSCOREA Plum.

cotinifolia Kunth. A herbaceous perennial climber found in bushclumps but uncommon throughout the sanctuary. Flowers in summer, producing winged fruits.

retusa Mast. Deciduous perennial climbing herb in dune scrub Flowers in summer,

producing winged fruits.

Iridaceae

DIETES Salisb.

iridioides (L.) Sweet. Dietes. An evergreen rhizomatous perennial lily rarely found growing in bushclumps and dune scrub on both eastern and western sides of the peninsula. White flowers are produced in summer.

FREESIA Klatt

sp. cf *laxa* or *grandiflora*. A rhizomatous perennial herb of bushclumps. Appears to be rare in the sanctuary. Flowers likely to be red.

GLADIOLUS L.

dalenii Van Geel. African gladiolus. A deciduous perennial geophyte widespread in miombo woodland. Flowers red with yellow throat are produced from February to June.

LAPEIROUSIA Pourr.

sp. Bak. Perennial deciduous bulb forming a single leaf followed by the flowers which are creamy grey with pale yellow spots on the petals. Found growing in open miombo woodland. Rare.

TRITONIA Ker Gawl

moggii Oberm.. An erect perennial deciduous geophyte only recorded from the miombo woodland west of the community harbour. Flowers red with yellow on three lower lobes. Plants were in flower during June. A Mozambique endemic. Listed in the RDB as Data Deficient (Golding in press).

Musaceae

MUSA

sapientum * Banana. A perennial tree cultivated by the local human population for its fruit. Rarely recorded from fallow lands.

Burmanniaceae

BURMANNIA L.

madagascariensis Mart. Small deciduous herbs with reduced leaves growing from a possibly perennial rhizome usually associated with marshy and moist conditions. Flowers mauve. Rare in the sanctuary only recorded from near Jane marsh and a pan in miombo woodland.

Orchidaceae

ANSELLIA Lindl.

africana Lindl. Leopard orchid. An epiphytic orchid very rarely recorded in miombo woodland.

CYRTORCHIS Schltr.

arcuata (Lindl.) Schltr. A very common perennial epiphytic orchid found growing on *Brachystegia spiciformis* throughout the sanctuary. Produces a spray of white flowers during summer.

EULOPHIA R.Br.

petersii (Reichb. f.) Reichb. f. . A terrestrial orchid forming pseudobulbs with long serrated olive green leaves. Perennial and gregarious, plants were commonly found in and around bushclumps. Long spikes of green, white and mauve flowers are produced mostly during summer. although plants in flower were recorded in June.

Listed as Data Deficient in the RDB (Golding in press).

sp. A rare geophyte growing in miombo woodland, producing a spike of white, yellow and purple striped flowers prior to the leaves.

OECEOCLADES Lindl.

maculata Reichb. f. A perennial ground orchid with maculate leaves found growing at the margin of a bushclump. Rare.

POLYSTACHYA Hook.

sp. An epiphytic orchid occurring in miombo woodland. Rare in the sanctuary.

SATYRIUM L.

hallackii H. Bol. A deciduous perennial orchid only recorded to date from the marsh adjacent to the southern sector fence but expected to occur in the sanctuary. Flowers pink.

VANILLA Plum.

roscheri Reichb. f. An evergreen, perennial almost leafless climbing orchid occurring in bushclumps and dune scrub throughout the reserve. Flowers white, produced in January. Related to the cultivated vanilla producing orchid *V. planifolia* from Mexico.

DICOTYLEDONAE

Casuarinaceae

CASUARINA L.

equisetifolia L. * Casuarina. Alien evergreen tree planted for the purpose of windbreaks, probably at the lighthouse but has spread widely especially along the estuary and adjacent spit.

Myricaceae

MYRICA L.

serrata Lam. An evergreen erect shrub with dense leafy foliage growing around the margins of pans and marshes in the vicinity of Jane marsh. Uncommon.

Ulmaceae

TREMA Lour.

orientalis L. Blume. Pigeonwood. A semi-deciduous tree of dune scrub and forest. Uncommon in the reserve, mostly in the eastern littoral strip. Flowers July.

Moraceae

MACLURA Nutt.

africana (Bur.) Corner. Thorny, deciduous, scandent shrub, common in dune scrub along the north and east of the peninsula; fruits edible.

CHLOROPHORA (Welw.) Benth. & J.D. Hook.

excelsa An immature individual of what could be this tree was recorded in the vicinity of "Baobab valley".

FICUS (Tourn.) L.

natalensis Hochst. An evergreen tree only recorded from the west central area around "Baobab valley". Fruits eaten birds and mammals.

sycamorus L. A large shady tree, rare in the sanctuary, mostly recorded in the vicinity of "Baobab Alley". The large stem borne fruits are eaten by people,

monkeys, birds and many other animals.

trichopoda Bak. Swamp fig. A large leaved fig found in the marshes along the eastern part of the sanctuary.

sp. cf *ingens* (Miq.) Miq. A small erect fig growing in a marshy seepage area along the upper littoral zone around a pan . Rare, it produces small red figs.

Loranthaceae

ERIANTHEMUM v. Tiegh.

dregei (Eckl. & Zeyh.) v. Tieghem. Bird lime. A deciduous hemi-parasite on a variety of host trees. Hairy flowers greenish with yellow tips. Uncommon.

TAPINANTHUS (Blume) Rchb.

sp. A common evergreen hemi-parasite on *Brachystegia spiciformis*, with pinkish red flowers and red fruits..

TIEGHEMIA Balle

sp. Rare hemi-parasite found growing at the edge of a bushclump. Flowers bright red. Fruit red berry-like and sticky.

Viscaceae

VISCUM L.

rotundifolium L. f. A hemi-parasite with rounded leaves parasitic on a variety of trees. Uncommon.

Santalaceae

THESIUM L.

sp. An uncommon perennial herb with greenish-white flowers growing in miombo woodland.

Olacaceae

OLAX L.

dissitiflora Oliv. A common evergreen tree or shrub growing mostly in bushclumps and dune scrub but also in open miombo woodland.

XIMENIA (Plum.) L.

caffra Sond. Large sourplum. A widespread spiny perennial semi deciduous shrub occurring throughout the sanctuary. Fruits edible but sour.

Polygonaceae

OXYGONUM Burch. Ex Campd.

dregeanum Meisn. A common annual herb with white star-shaped flowers and spiny fruits found throughout the reserve.

PERSICARIA Mill.

attenuata (R.Br.) Sojak ssp. *africana* K.L. Wilson. A perennial herb with whitish – pink flowers usually growing under moist conditions around the perimeter of pans and swamps.

Chenopodiaceae

CHENOLEA Thunb.

diffusa Thunb. Perennial mat-forming herb restricted to drier marginal zones of salt marshes. Only recorded at Msasa.

SALICORNIA L.

perrieri Chev. An annual erect, fleshy succulent herb of salt marshes. Most common at the estuary.

SARCOCORNIA A.J. Scott

sp. cf *perennis* (Mill.) A.J. Scott.. A mat-forming succulent green herb growing along salt marshes.

Uncommon and restricted in distribution in the sanctuary.

SALSOLA L.

sp. A very small succulent leaved herb growing in salt marshes. Very rare in the sanctuary.

Amaranthaceae

ACHYRANTHES L.

aspera L. var. *aspera* An annual herb with a spiny papery inflorescence. Mauve and pink.

CELOSIA L.

trigyna L. A common, annual herb with off-white branched spicate inflorescence usually found around the base of trees in miombo woodland.

sp. cf *linearis*. A slender annual herb with a mauve to purple spicate inflorescence, found mostly around the littoral zone of pans and in moist areas.

KYPHOCARPA (Fenzl.) Lopr.

angustifolia (Moq.) Lopr. A common annual herb widespread in open miombo woodland. Inflorescence a spiny white cylindrical spike.

PUPALIA A. Juss.

lappacea (L.) A. Juss. Burr weed. An uncommon annual herb usually associated with dune scrub and bushclumps.

Nyctaginaceae

BOERHAVIA L.

diffusa L. * A common semi-prostrate to prostrate herb associated with disturbed conditions. Flowers insignificant.

Aizoaceae

GIZEKIA L.

africana (Lour.) Kuntze ssp. *africana*. A common annual prostrate herb with pink flowers. Widespread.especially under disturbed conditions.

GLINUS L.

lotoides L. var. *lotoides* . An annual prostrate herb restricted to the perimeter of pans in the littoral zone.

LIMEUM L.

sulcatum (Klotzsch) Hutch. An annual, prostrate, creeping herb with green and white flowers, widespread but sporadic in occurrence.

viscosum (Gay) Fenzl . Uncommon but widespread prostrate annual herb with greenish flowers.

fenestratum (Fenzl.) Hiemerl . A common erect annual herb with white flowers mostly found in cultivated and fallow lands.

SESUVIUM L.

portulacastrum L. A prostrate perennial succulent, creeping herb mostly found along the upper littoral zone and salt flats. Frequently associated with White mangroves *Avicennia marina*. Leaves turn red, flowers star-shaped, magenta.

Mesembryanthemaceae

CARPOBROTUS N.E. Br.

junodii. An uncommon perennial, creeping succulent herb with purple, white-centred flowers. Only recorded from the spit along the eastern side of the estuary.

Portulacaceae

PORTULACA L.

kermesina N.E. Br. An erect annual succulent herb with red flowers found in thicket along west facing dunes. Rare.

Nymphaeaceae

NYMPHAEA

nouchalii Burm. f. var. *caerulea* (Sav.) Verdc. A common aquatic annual or perennial herb with floating leaves. Flowers blue or pink.

nouchalii Burm. f. var. *zanzibariensis* (Casp.) Verdc. A large flowered wavy leaved plant found in pans throughout the area, often together with the previous form.

Ranunculaceae

CLEMATIS L.

brachiata Thunb. A perennial deciduous, herbaceous to woody climber. Flowers white, during summer. Uncommon.

Menispermaceae

COCCULUS DC.

hirsutus (L.) Diels A perennial herbaceous climber growing in dune scrub.

CISSAMPELOS L.

mucronata A. Rich. A deciduous, perennial herbaceous climber widespread in the sanctuary but uncommon.

Annonaceae

UVARIA L.

caffra E. Mey. Ex Sond. A common scandent shrub mostly recorded from bushclumps.

ARTABOTRYS R.Br.

brachypetalus Benth. A very common scandent and climbing shrub, mostly found in bushclumps but also in open woodland. Fruit used in making an alcoholic beverage.

monteiroae Oliv. A scandent and climbing shrub, mostly found in bushclumps and dune scrub. Widespread.

ANNONA L.

senegalensis Pers. ssp *senegalensis* A rare shrub or small tree in the sanctuary

producing large orange edible fruit.

MONANTHOTAXIS Baillon

caffra (Sond.) Verdc. An uncommon shrub occurring in bushclumps in miombo woodland.

Lauraceae

CASSYTHA L.

filiformis L.* A climbing and twining herb covering trees and shrubs sometimes almost smothering the vegetation. Fruit a round white berry. Widespread and abundant.

Capparaceae

CAPPARIS (Tourn.) L.

sepiaria L. Wild caper-bush. An uncommon evergreen scandent shrub with hooked prickles below the leaves. Flowers are an attractive open paintbrush, white to mauve. Mostly found in dune scrub.

CLEOME L.

hirta (Klotsch) Oliv. An erect annual herb, rarely recorded from the reserve in disturbed areas in dune scrub.

stricta (Klotsch) R.A. Graham. An attractive erect or spreading annual herb in dune scrub. Flowers rose-coloured to purplish.

sp. cf. *macrophylla* (Klotzsch) Briq. An uncommon annual herb growing at the edge of bushclumps in miombo woodland. Flowers pinkish-mauve.

sp. An uncommon, erect, annual or perennial herb mostly recorded from dune scrub and thicket particularly around Jane marsh. Flowers small, greenish white.

MAERUA Forssk.

angolensis DC. An uncommon shrub in dune scrub along the estuary.

brunnescens Wild. A small shrub rarely recorded from dune scrub. A Mozambique endemic classed as Data Deficient in the RDB (Golding in press)

nervosa (Hochst.) Oliv. A common and widespread shrub, mostly in dune scrub but also in bushclumps and thickets..

Droseraceae

DROSERA L.

madagascariensis DC. A small slenderleaved erect annual sundew, with pink flowers. Leaves reddish and covered with glutinous hairlike glands.

sp. An annual herb with reddish tinted leaves lying flat on the ground.

Recorded from the marsh along the margins of the sanctuary.

Hydrostachyaceae

HYDROSTACHYS Thouars

sp. A halophytic herb recorded as very rare from mangroves at the upper end of the estuary. Flowers small, green and clustered along a spike.

Crassulaceae

CRASSULA L.

sp. An annual succulent herb occasional in open miombo woodland. Flowers

white.

KALANCHOE Adans.

neglecta Tolken. An uncommon succulent, perennial herb growing in thicket along west facing slopes and in dune thicket. Flowers red.

Brexiaceae

BREXIA Nor.

madagascariensis Thou. ex Ker. Gawl. Evergreen shrub with rounded succulent leaves, growing along salt flats on the landward side of the White mangrove *Avicennia marina*. Locally common in suitable habitat.

Fabaceae

ABRUS Adans.

laevigatus E. Mey. Perennial deciduous twining climber in dune scrub with green flowers. Uncommon.

precatorius L. Lucky beans. A common deciduous climber and creeper throughout the sanctuary. Characterised by the black and red seeds crowded in a cluster of pods.

ACACIA (Tourn. Ex L.) Willd.

burkei Benth. Black monkey thorn. An erect deciduous tree with strong blackish paired curved thorns below the leaves. Flowers comprised of round slender white spikes. Mostly recorded in the west.

kraussiana Meisn. Coastal climbing acacia. An evergreen thorny climber or scandent shrub in dune scrub.

Mostly restricted to the low-lying areas of the sanctuary. Flowers in summer producing creamy white balls.

robusta Burch. ssp. *clavigera* (E. Mey.) Brenan. Splendid acacia. A rare erect perennial tree recorded from dune scrub along the estuary.

sp. cf *grandicornuta* Gerstner. A small to large, flat crowned deciduous, perennial tree with paired both long and short spines at the nodes, restricted in distribution to a narrow belt on the littoral margins of dune scrub in the north and along the estuary.

AFZELIA Smith

quanzensis Welw. Pod mahogany. A large deciduous perennial tree with scarlet and green flowers. Have characteristic pods with black seeds topped by a scarlet aril.

Restricted to dune scrub and thicket, mostly along the eastern side of the peninsula.

Listed in the RDB as Locally Restricted, near threatened (Golding in press).

ALBIZIA Durazz.

adanthifolia (Schumach.) W.F. Wight. Flat crown. A large evergreen tree characterised by a flat umbrella shaped crown with compound dark green leaves, and paintbrush flowers. Pods flat and wavy. Mostly found along the western side of the peninsula, particularly in "Baobab valley" but widespread.

forbesii Benth. Broad pod albizia. A large sprawling tree with drooping branches distributed sporadically in the reserve.

BRACHYSTEGLIA Benth.

spiciformis Benth. Msasa. A large deciduous tree growing prolifically in the reserve and is the most common species. Vegetatively very difficult to separate from a related co-dominant species *Julbernardia globiflora*. In spring the emerging young leaves produce a range of colours from yellow to red in a splendid display. The tree is extensively used in bark for containers, the inner bark for rope and wood for hut construction among others.

sp. *torrei* Torre's msasa. A large umbrella like tree with drooping branches and dark

purplish-black pods and a smooth bark. Mostly found along dune slopes above the estuary it also occurs throughout the miombo woodland.

CAESALPINIA L.

bonduc (L.) Roxb. Bonduc. A robust prickly scandent climber with compound leaves, sprays of yellow flowers and oval pods covered in spines, like a hedgehog, appears to occur mostly in dune scrub along the estuary.

CANAVALIA D.C.

rosea (Swartz) DC. Perennial deciduous prostrate mat-forming herb, a pioneer along the littoral zone assisting in binding the sand. Flowers in attractive deep pink to purplish-pink spikes.

CASSIA (Tourn.) L.

abbreviata Oliv. Sjambok pod. An uncommon small tree with yellow flowers and long cylindrical pods found in dune scrub along the estuary.

CHAMAECHRISTA Moench.

mimosoides (L.) Greene A semi-prostrate herb widespread in miombo woodland.

plumosa E. Mey. var. *erecta* (Schorn & Gordon-Gray) Lock. A woody herb or shrub with large orange-yellow flowers widespread and common throughout the sanctuary.

sp. A slender woody herb recorded from moist soils around the periphery of marshes.

CORDYLA Lour.

africana Lour. Wild mango. A large deciduous tree with a spreading crown only recorded from “Baobab valley”. Flowers in sprays of orange-yellow powder puffs, with edible large almost round, yellow fruits.

CRAIBIA Harms & Dunn

zimmermannii (Harms) Harms ex Dunn. Small craibia. A small frequently multistemmed evergreen leafy tree with sprays of white flowers. Uncommon but widespread in the reserve.

CROTALARIA L.

monteiroi Taub. Perennial evergreen shrub with silver-green leaves and yellow flowers, widespread and common throughout the reserve.

sp. (silver) A multi-stemmed herb with silvery leaves crowded along each stem.

sp. (prostrate). A small annual prostrate, yellow flowered herb occurring in open miombo woodland.

sp. (erect) An uncommon semi-erect herb in miombo woodland.

sp. An erect woody herb with large trifoliolate leaves and terminal spikes of yellow flowers found growing in miombo woodland.

DIALIUM L.

schlechteri Harms. Zulu podberry. A rare semi-deciduous to evergreen tree only recorded from dune scrub and woodland along the estuary.

DICROSTACHYS (DC.) Wight & Arn.

cinerea (L.) Wight & Arn. Sickie bush. A deciduous spiny shrub or small tree widespread but sparsely distributed in the sanctuary, mostly in bushclumps.

ELEPHANTORRHIZA Benth.

elephantina (Burch.) Skeels. Eland bean. A deciduous dwarf shrub with cream flower spikes arising at ground level. Only recorded from the eastern side of the peninsula.

ERIOSEMA Desv.

parviflorum E. Mey. An semi-erect perennial herb with yellow flowers usually associated with moist habitats fringing marshes and pans.

INDIGOFERA L.

flavicans Bak. (large silvery leaves, prostrate) A species mostly found in fallow

lands.

sp. (filiform). A perennial herb with solitary pink flowers common in miombo woodland.

sp. (fine) A small semi-prostrate annual herb mostly associated with disturbed conditions.

sp. (silvery, erect). An uncommon erect herb recorded from the western side of the peninsula and especially along the littoral margin of dune thicket along the east coast.

sp. (woody) A common woody perennial herb mostly associated with fallow lands and disturbed soils.

JULBERNADIA Pellegr.

globiflora (Benth.) Troupin. Munondo. A common tree in miombo woodland throughout the sanctuary. Common along the margins of depressions in the south.

MACROTYLOMA (Wight & Arn.) Verdc.

axillare (E. Mey.) Verdc. A common herbaceous climber in bushclumps and dune scrub. Flowers greenish white.

MILLETTIA Wight & Arn.

grandis (E. Mey.) Skeels. Small trees or shrubs only recorded from dune thicket/scrub along the estuary.

MUNDULEA Benth.

sericea (Willd.) Chev. Cork bush. A widespread shrub with sprays of mauve flowers. The crushed bark is reputed to be used as a fish poison.

NEONOTONIA Lackey

wightii (Arn.) Lackey. A perennial herbaceous climber in bushclumps with erect spikes of small white flowers.

PELTOPHORUM Walp.

africanum Sond. African wattle. A small to medium sized tree uncommon in the sanctuary and then mostly as a coppicing multi-stemmed shrub.

PTEROCARPUS L.

rotundifolius (Sond.) Druce ssp. *rotundifolius* A small to medium deciduous tree with sprays of yellow flowers in summer. Recorded in the eastern sector of the sanctuary particularly in the vicinity of "Baobab valley".

REQUIENIA DC.

pseudosphaerosperma (Schinz) Brummit. A perennial herb with erect branches arising from a woody rootstock. Pods clustered along the stem. Rare in the sanctuary.

sp. cf *sphaerosperma* DC. A semi-prostrate perennial herb with branches fan-like and pods clustered along the branches. Rare in miombo woodland.

RHYNCHOSIA Lour.

minima (L.) DC. A slender climber herb with yellow flowers uncommon in miombo woodland.

totta (Thunb.) DC. Var. *totta* A widespread slender climbing herb with yellow flowers.

sp. cf *hirta* (Andrews) Meikle & Verdc. Uncommon large leaved herbaceous climber recorded in dune scrub.

sp. An uncommon herbaceous climber recorded on the fringes of marshy areas

SENNA Mill.

occidentalis (L.) Link * A low deciduous shrub only recorded from cultivated areas. According to McNae & Kalk (1969) the plants are extensively cultivated for medicinal properties.

petersiana (Bolle) Lock. A common shrub, mostly in the east but widespread in the sanctuary

SESBANIA Scop.

sp. Uncommon annual woody herb growing in moist soil at Jane marsh.

SOPHORA L.

inhambanensis Klotzsch A small silvery leaved shrub only recorded to date from the Spit north of the lighthouse and southwards along the littoral margins of the dunes. A very attractive plant with pendent sprays of yellow flowers.

STYLOSANTHES Swartz

fruticosa (Retz.) Alst. An erect perennial herb with small yellow flowers growing in open miombo woodland.

TAMARINDUS L.

indica L. Tamarind. A large evergreen tree with dense foliage and drooping branches. The pulp of the pods is edible and has medicinal value, being used as a laxative and in the treatment of fever. For more details consult Palgrave (1984) and Watt & Breyer Brandwijk (1962).

TEPHROSIA Pers.

longipes Meisn. ssp. *longipes*. An erect perennial woody herb with large pink pea shaped flowers. Widespread in miombo woodland.

polystachya E. Mey. A erect deciduous woody herb with mauve and pink flowers occurring in areas of disturbed soil in the western part of the sanctuary.

purpurea (L.) Pers. A prostrate herb with dark pink to purple widespread and common in miombo woodland.

VIGNA Savi

frutescens A. Rich. A twining herb with triangular leaves and mauve flowers, uncommon but widespread.

unguiculata (L.) Walp. A common herbaceous creeper and climber with variegated leaves and purple flowers

vexillata (L.) A. Rich. A common climbing or twining herb with variegated leaves and purple flowers found throughout the peninsula.

VOANDZEIA Thou.

subterranea Thou. * Ground nut. An alien annual herb cultivated for its subterranean nuts. Flowers yellow.

Oxalidaceae

OXALIS L.

semiloba Sond. A common oxalis with deep pink flowers usually found around the bases of trees in miombo woodland.

Linaceae

HUGONIA L.

orientalis Engl. A scandent shrub only recorded from dune scrub and adjacent woodland along the estuary.

Erythroxylaceae

ERYTHROXYLUM P. Br.

delagoense Schinz. Small leaved coca tree. A shrub or small tree common in bushclumps in miombo woodland. Fruit fleshy bright red.

emarginatum Thonn. Common coca tree. A shrub or small tree with stiff green leaves mostly found in dune scrub, but also occasionally in bushclumps.

Zygophyllaceae

TRIBULUS (Tourn.) L.

terrestris L. An uncommon prostrate herb with yellow flowers associated with areas of cultivation and disturbance. Fruit angular, thorny. Uncommon on the peninsula.

Balanitaceae

BALANITES Delile

maughamii Sprague. Torchwood. Among the tallest trees in the sanctuary. These trees typically occur as emergents in bushclumps as well as individuals in open miombo woodland. Widespread and common throughout. Also has medicinal uses (see Palgrave 1984).

Rutaceae

ZANTHOXYLUM L.

schlechteri Engl. A thorny shrub or small tree mostly found in dune scrub, particularly along the estuary but also occasionally elsewhere. Regarded as Vulnerable in the RDB (Golding in press).

VEPRIS Commers. ex Adr. Juss.

lanceolata (Lam.) G. Don. White ironwood. A small tree with wavy trifoliate leaves only recorded in dune scrub along the estuary.

TECLEA Delile

gerrardii Verdoorn . Zulu teclea. A small evergreen tree with trifoliate leaves restricted to dune scrub and an occasional bushclump.

CITRUS L.

limon (L.) N.L. Burm.* Lemon. A rare alien tree only recorded in areas of dense settlement along the fence line. Cultivated for its fruit.

Simaroubaceae

SURIANA L.

maritima L. A locally common shrub on the landward side of mangroves and along salt flats. Found usually in association with mangroves sometimes forming monotypic stands.

Burseraceae

COMMIPHORA Jacq.

neglecta Verdoorn. An attractive but spiny shrub or small tree growing singly or forming dense stands in dune scrub along the estuary and airstrip. Bark green and peeling. Can be planted from truncheons.

schlechteri Engl. A more widespread shrub or small tree being found throughout the peninsula, with bunches of pendent oval sharp pointed pink fruit.

Meliaceae

XYLOCARPUS Koenig

granatum Koenig. Mangrove mahogany. A rare tree in the sanctuary, and only recorded from a narrow fringe of mangroves along the estuary. Appears to be a pan-

tropical species occurring as far as Australia, Fiji and Tonga.

TURRAEA L.

nilotica Kotschy & Peyr. A common shrub to small tree, particularly along the western side of the peninsula, but not restricted to it. Flowers in abundance during June, the bunches of yellowish-green flowers are an important garden plant.

TRICHILIA P. Br.

emetica Vahl. Natal mahogany. A large evergreen shady tree mostly found in dune scrub and bushclumps but uncommon. The round fruits split open to reveal the black seeds surrounded by a red aril. An infusion of the bark is used as an emetic. The boiled seeds produce an oil used in traditional medicine and for soap production (see Palgrave 1984).

Ptaeroxylaceae

PTAEROXYLON Eckl. & Zeyh.

obliquum (Thunb.) Radl. Sneezewood. A shrub to large tree only recorded in dune scrub along the estuary. It has a variety of medicinal and timber uses (see Palgrave 1984).

Malpighiaceae

ACRIDOCARPUS Guill. & Perr.

natalitius Adr. Juss. Moth fruit. A scandent shrub to strong climber with pyramidal spikes of yellow flowers. The characteristic fruits are winged. Mostly restricted to dune thicket. An attractive garden plant with considerable magical qualities (see Palgrave 1984).

Euphorbiaceae

ALCHORNEA Swartz

laxiflora (Benth.) Pax & K. Hoffm. Venda bead-string. A shrub or small tree common in the west-central area of the peninsula, especially around "Baobab valley". An attractive species particularly during autumn when the leaves become yellow, orange and red.

ANTIDESMA L.

venosum E. Mey. ex Tul. Tassel berry. A common small tree and shrub occurring widely on the peninsula in bushclumps, miombo woodland and dune forest. The berries are initially pink becoming black on maturity. The roots are said to have medicinal properties.

BRIDELIA Willd.

cathartica Bertol. f. Knobby bridelia. A common small tree and shrub occurring widespread throughout the peninsula. Characterised by the smaller leaves towards the tips of branches together with the persistent knobby remains of the inflorescence. Fruit a brown berry becoming blackish with maturity.

CTENOMERIA Harv.

capensis (Thunb.) Harv. A slender climbing herb recorded in dune scrub and bushclumps. Covered in stinging irritating hairs which can cause a rash.

CROTON L.

pseudopulchellus Pax. A shrub occurring in thicket in miombo woodland along the west side of the peninsula. Rare.

DALECHAMPIA (Plum.) L.

capensis Spreng. A perennial deciduous herbaceous climber recorded in dune scrub

along the estuary. Uncommon but likely to be more widespread.

DRYPETES Vahl

arguta (Muell. Arg.) Hutch. A small tree with bright green foliage occurring in dune scrub along the estuary. Rare in the sanctuary.

EUPHORBIA L.

halipedicola Leach. A rare succulent shrub recorded from dune scrub on dunes along the east coast.

matabelensis Pax. An uncommon, alien shrub planted as a hedge around huts in "Baobab valley".

tirucallii L. An evergreen almost leafless succulent tree with a reputedly poisonous milk sap. Branches a round with leaves restricted to the upper tips. As it grows easily by cuttings the species is extensively used to form hedges around dwellings. It is possible that the origins of this species on the reserve may have stemmed from this. Plants have also been recorded away from habitation. It seems that even goats do not feed on this plant.

triangularis Desf. A thorny triangular branched almost leafless tree with a poisonous milky latex. Only known on the reserve from two small populations in dune scrub and thicket on both sides of the peninsula.

sp. aff. *ambroseae* Leach. A plant which appears closely related to *E. ambroseae* differing in the absence of a continuous spine shield. The former, a Mozambique endemic was described from plants collected north of the Save river. The plants found on the peninsula appear to look the same and grow in similar habitats, ie dune scrub and thicket, in shade that leads to this provisional conclusion. Leafless succulent shrubs with variegated stems and branches and a milky latex.

MANIHOT Adans.

esculenta Crantz * Cassava. An alien deciduous shrub or small tree cultivated extensively for their edible tuberous roots from which a meal is made. Plants still grow in fallow land. Widespread on the reserve.

MAPROUNEA Aubl.

africana Muell. Arg. Redskin. An abundant and attractive tree or shrub growing widespread in the sanctuary mostly in miombo woodland. The pendent leaves in autumn become different shades of yellow to red bring a splash of colour to the countryside.

MARGARITARIA L.f.

discoidea (Baillon) Webster. Common pheasant berry. An uncommon but widespread deciduous shrub occurring in bushclumps and dune scrub.

PHYLLANTHUS L.

reticulatus Poir. Potato bush. A common scandent shrub widespread in distribution, mostly associated with bushclumps, thickets and dune scrub.

sp. An annual herb widespread in miombo woodland usually under trees and in disturbed areas.

RICINUS (Tourn.) L.

communis L. * Castor Oil tree. A perennial alien shrub or small tree usually growing in cultivated areas and fallow land, but also spreading to other less disturbed sites.

SAPIUM Jacq.

ellipticum (Hochst.) Pax Jumping seed tree. An uncommon evergreen shrub or tree in dune scrub with shiny green leaves.

integerrimum (Hochst.) Leonard. Duiker berry. A rare evergreen shrub or small tree in dune scrub.

SUREGADA Roxb. ex Rottler

zanzibariensis Baillon. Woodland suregada. A shrub or small tree mostly found in

dune scrub but also occasionally in bushclumps in miombo woodland. Flowers small yellowish green, in the axils of the leaves. Leaves a shiny green, margins toothed.

TRAGIA L.

okanyua Pax. A herbaceous climber in miombo woodland and dune scrub. Plants covered in stinging nettle hairs which can cause a rash.

Anacardiaceae

ANACARDIUM L.

occidentale L.* Cashew nut. A small to medium sized evergreen tree, with large leaves, extensively cultivated for the production of nuts as well as the edible fruits. The latter may also be distilled for alcohol. An alien species it continues to grow wherever planted even on old sites and there is evidence to suggest that it also seeds itself out. Many old long abandoned sites are characterised by the presence of these trees. Common throughout and now forms part of the miombo woodland.

LANNEA A. Rich.

sp. cf *antiscorbutica* (Hiern.) Engl. Pink-haired lannea. A small tree frequently around bushclumps in miombo woodland. Scattered elsewhere.

MANGIFERA L.

indica L.* Mango . A common medium to large evergreen tree growing mostly around human habitation throughout the sanctuary. Cultivated for its edible fruits.

OZOROA Delile

obovata (Oliv.) R.& A. Fernandes. Broad-leaved resin tree. A common evergreen small to medium tree growing in dune scrub and throughout the miombo woodland often in association with bushclumps. Produces large numbers of black drupes during winter.

RHUS L.

natalensis Bernh. A multistemmed shrub or small tree usually found in bushclumps, thickets and in dune scrub. Widespread and common along the peninsula. May be spiny resulting from short persistent branches.

SCLEROCARYA Hochst.

birrea (A. Rich.) Hochst. ssp. *caffra*. Marula. A common small to large tree growing in miombo woodland, thicket and dune scrub. Widespread no doubt because of the edible fruits which may be transported over large distances. The fruits have a single stone which contains highly nutritious seeds. The tree has many medicinal uses.

Celastraceae

ELAEODENDRON Jacq.

matabelicum Loes. A shrub or small tree common but mostly confined to dune scrub. Fruits large round and pale yellow.

schlechteranum (Loes.) Loes. . A rare shrub with small green leaves growing in dune scrub along the estuary.

GYMNOSPORIA Benth.

heterophylla (Eckl. & Zeyh.) Common spike-thorn. A widespread and common shrub occurring in dune scrub and less commonly in open miombo woodland.

mossambicensis (Klotzsch) Blakelock. Red forest spike-thorn. A shrub only recorded from dune thicket and scrub along the estuary.

senegalensis (Lam.) Exell. Confetti bush. A shrub or small tree found scattered in miombo woodland.

HIPPOCRATEA L.

sp. An uncommon scandent shrub occurring mostly in dune scrub along the estuary.

MYSTROXYLON

aethiopicum (Thunb.) Loes. Kooboo berry. An evergreen shrub or small tree mostly found in dune scrub in the north of the peninsula and along the estuary. Fruit edible.

SALACIA L.

kraussii (Harv.) Harv. A common shrub growing throughout the sanctuary but less common in dune scrub. Fruits edible.

Icacinaceae

APODYTES E. Mey. ex Arn.

dimidiata ? E. Mey ex Arn. White pear. A small tree growing in dune scrub along the estuary. Rare.

Sapindaceae

ALLOPHYLLUS L.

africanus Beauv. A shrub occurring inside bushclumps and thickets in miombo woodland. Uncommon.

mossambicensis Exell. Endemic to Mozambique this small shrub is usually less than 1 m high and found growing in dune scrub and thicket mostly on the eastern side of the peninsula. Listed as Vulnerable in the RDB (Golding in press).

BLIGHIA Konig

unijugata Bak. Along the peninsula mostly recorded as a shrub or a small tree. Common in dune scrub and in the west in the vicinity of “Baobab valley” both areas probably being dune or sand forest prior to human occupation. An evergreen species which could be used to rehabilitate such areas.

DEINBOLLIA Schumach.

oblongifolia (E. Mey. ex Arn.) Radlk. A common shrub with dense spikes of white flowers found throughout the sanctuary but perhaps most common in dune scrub in the east.

DODONAEA Mill..

angustifolia L. f. A shrub with shiny resinous leaves and winged fruit sparsely distributed in the sanctuary along the coast and nowhere common.

HAPLOCOELOM Radlk.

foliolosum (Hiern.) Bullock A gnarled and stunted shrub with leaves appearing on the ends of short side branches. Restricted in distribution to dune scrub along the estuary.

Rhamnaceae

SCUTIA Comm. ex Brongn.

myrtina (N.L. Burm.) Kurz . Cat thorn. An uncommon evergreen scandent shrub of dune scrub. Produces large numbers of fruit which are eaten by many bird species.

ZIZYPHUS Mill.

mauritiana Lam. An attractive thorny introduced tree found along the littoral zone on the western side of the peninsula and south of Dugong Lodge. Presumably planted for the harvesting of its fruit which are edible and also used to make an alcoholic beverage (Palgrave 1984).

mucronata Willd. Buffalo thorn. A rare thorny, semi-deciduous tree only recorded from dune scrub fringing the estuary, trees being located at or close to the littoral zone. This tree has many magico-medicinal uses (see Palgrave 1984).

Vitaceae

CISSUS L.

integrifolia (Bak.) Planch. A robust herbaceous climber with a thickened stem found growing in dune scrub along the estuary. Fruits are large 20 x 10 mm and red when mature.

quadrangularis L. A common climber characterised by its square, succulent and jointed stem which in older stems becomes winged. Widespread throughout the peninsula. Fruit red when ripe.

rotundifolius (Forssk.) Vahl. A succulent round to ovate leaved robust climber over trees and shrubs in dune forest mostly along the estuary but also in the north of the peninsula. Fruit red on maturity.

CYPHOSTEMMA (Planch.) Alston

subciliatum (Bak.) Descoings. A common prostrate creeper more rarely a climber throughout the peninsula including areas under cultivation. Leaves 5-foliolate and fleshy. Fruits in bunches at the nodes, red when mature.

sp. cf *hypoleucum* (Harv.) Descoings. A herbaceous climber with 5-foliolate, discoloured leaves in dune scrub along the estuary. Rare.

sp. A rare 5-foliolate herbaceous climber in dune scrub along the estuary.

RHOICISSUS Planch.

revoilii Planch. An uncommon trifoliolate shrub or climber, widespread in bushclumps in miombo woodland and in dune scrub.

Tiliaceae

CORCHORUS L.

junodii (Schinz) N.E. Br. A very common woody herb with bicoloured leaves, yellow flowers and a burr-like fruit. Widespread throughout the peninsula.

GREWIA L.

bicolor Juss. Bastard brandybush. An uncommon shrub with bicoloured leaves mostly recorded from dune scrub along the estuary. Flowers yellow. Fruit brown.

flavescens Juss. var. *flavescens*. Rough-leaved raisin. A semi-scandent square-stemmed shrub recorded from littoral scrub along the estuary and northern tip of the peninsula. Flowers yellow, and fruit edible.

occidentalis L. Cross berry. An attractive but uncommon shrub growing in dune scrub and thicket along former beach terraces at the northern tip of the peninsula.

sulcata Mast. Stellar cross-berry. The commonest shrub or scandent climber occurring throughout the sanctuary, but largest in the dune scrub of the north and east where it climbs over trees. Flowers large, white to cream-coloured. Fruits reddish-brown at maturity.

TRIUMFETTA Plum.

rhomboidea Jacq. Perennial deciduous woody herb mostly recorded from fallow lands and areas of cultivation. Plants have yellow flowers and the fruits form burrs aiding in their distribution.

Malvaceae

ABUTILON Mill.

sp. An uncommon low woody herb with large yellow flowers growing in dune scrub.

HIBISCUS L.

cannabinus L. An annual erect to decumbent herb with coarse spiny hairs and

yellow purple centred flowers usually associated with cultivation and fallow lands. Localised and uncommon.

diversifolius Jacq. ssp. *diversifolius*. A thorny spreading deciduous shrub usually found around the perimeter of marshes in moist soil. Flowers yellow with maroon centre.

diversifolius Jacq. ssp. *rivularis* (Bremek. & Oberm.) Exell. A more densely pubescent form than the previous form and has purple, dark centred flowers. Only recorded from a seepage area along the margin of a pan.

schinzii Gurke. A perennial evergreen prostrate spreading herb with yellow, maroon centred flowers widespread in open miombo woodland, fallow lands and dune scrub.

tiliaceus L. A large tree-like hibiscus with rounded heart-shaped leaves occurring under marshy conditions in dune scrub immediately behind the littoral zone along the estuary. Flowers yellow. Uncommon.

sp. (fallow lands). A rare erect woody herb with yellow flowers with a maroon centre only found in fallow lands below the airstrip in the east of the sanctuary.

sp. An erect herbaceous hibiscus with red flowers found growing in lowland woodland.

PAVONIA Cav.

leptocalyx (Sond.) Ulbr. A deciduous woody perennial herb with white flowers, widespread in open miombo woodland and areas of cultivation.

SIDA L.

cordifolia L. A perennial woody herb of fallow lands and disturbed areas, often in the shade of trees. Flowers orange-yellow.

Bombacaceae

ADANSONIA L.

digitata L. A fat stemmed tree with a smooth bark, digitate leaves and large white flowers, pollinated by fruit bats, bushbabies and perhaps squirrels, resulting in large pods filled with hard seeds, coated with an astringent flesh or tartar. Largest trees are found along “Baobab Alley” but smaller trees derived from human translocation of seeds are found along the estuary and elsewhere. A tree that could be considered a keystone species because of its importance in providing food and shelter to a range of animals.

Sterculiaceae

MELHANIA Forssk.

forbesii Planch. A common and widespread woody perennial herb with greyish leaves and large yellow-orange flowers which usually only open during the afternoon.

HERMANNIA L.

sp. cf *boraginiflora* Hook. An uncommon erect herb of disturbed sites in open miombo woodland and sandflats.

WALTHERIA L.

indica L. A perennial, evergreen woody herb with small yellow flowers occurring in clusters in the leaf axils. Common throughout the peninsula particularly in areas of disturbance and could be considered an increaser species, highlighting habitat degradation.

Ochnaceae

BRACKENRIDGEA A. Gray

zanguebarica Oliv. A common shrub mainly found in dune scrub and thicket in the north and along the estuary but also widespread in bushclumps in miombo woodland.

OCHNA L.

natalitia Engl. & Gilg. A widespread species occurring in dune scrub, thicket and miombo woodland. Flowers yellow.

Clusiaceae

GARCINIA L.

livingstonei T. Anders. African mangosteen. A common much branched, shrub or tree with leaves crowded on the ends of the branches. Evergreen the smaller branches are usually at right angles to the vertical. Flowers along the stem, small, green. The mature fruits are orange red and edible. Often concentrated around the perimeters of pans and other moist soils.

Flacourtiaceae

CASEARIA Jacq.

gladiiformis Mast. Sword leaf. A large shrub or small tree with twin rows of pendent shiny green leaves only growing along low-lying areas particularly in dune scrub along the estuary, the northern end of the sanctuary and at “Baobab Alley”.

DOYALIS E. Mey.

longispina (Harv.) Warb. A spiny shrub restricted to dune scrub along the estuary and in the north. Mature fruit orange, astringent but edible.

FLACOURTIA L'Herit

indica (N.L. Burm.) Merr. A common spiny shrub or bushy tree with dark green leaves and reddish spines. Fruits edible, round dark red to purplish on maturity. Also has medicinal properties.

RAWSONIA Harv. & Sond.

lucida Harv. & Sond. A dense shrub or small tree with shiny holly like evergreen leaves restricted in distribution to the low-lying dune scrub in the east and north of the peninsula as well as the vicinity of “Baobab valley”.

XYLOTHECA Hochst.

kraussiana Hochst. An evergreen shrub with spectacular large white flowers, occurring sporadically but widespread throughout the sanctuary. Fruits orange.

Passifloraceae

ADENIA Forssk.

gummifera (Harv.) Harms. A robust herbaceous climber with rough green stems only recorded from dune scrub along the estuary.

PASSIFLORA L.

edulis Sims.* Grenadilla. An evergreen herbaceous climber usually grown under cultivation for its fruit, but occasionally an alien of fallow lands and surrounding woodland.

Caricaceae

CARICA L.

papaya L.* Papaya or Pawpaw. An alien perennial deciduous semi-succulent tree

cultivated in cleared miombo woodland.

Cactaceae

OPUNTIA Mill.

aurantiaca Lindl.* An alien cactus grown as an ornamental, has escaped forming large stands along the main access road to the south in the vicinity of “Baobab Alley”.

ficus indica (L.) Mill.* An alien cactus grown for its fruit, a colony has established itself near that of the previous species. Individuals also present around human habitation in dune scrub in the north and east.

Thymelaeaceae

SYNAPTOLEPIS Oliv.

kirkii Oliv. A common deciduous woody climbing shrub characterised by its paired leaves. Flowers during June –July, white to creamy yellow, pendent below the branches. Fruits small, ovoid drupes, red in colour. The plant also has medicinal value.

Lythraceae

AMMANNIA

sp. A small prostrate, radiate herb with purple flowers, restricted to moist soils around the perimeter of pans in the middle to upper littoral zone.

Sonneratiaceae

SONNERATIA L.f.

alba Smith. Sonneratia or Powder-puff mangrove. A large mangrove species with pneumatophores growing along the seaward side of the mangrove community. Has large obovate green fleshy leaves and flowers comprised of a powder puff of white stamens. Fruit large, round 10-15 cm in diameter, splitting into three sections.

Rhizophoraceae

CERIOPS Arn.

tagal (Perr.) C.B. Robonson. Indian mangrove. An evergreen shrub or small tree with short contorted stilt roots and knee-like pneumatophores. Flowers small inconspicuous, 5 sepals. Fruits viviparous developing into 15 cm long bluntly ridged hypocotyls which falls off penetrating the mud. The young plant grows out of the top.

RHIZOPHORA L.

mucronata Lam. Red mangrove. A small to medium evergreen tree with stilt-like buttress roots usually growing together with or behind Sonneratia in shallow to deep water. A common mangrove on both east and western sides of the peninsula. Like the previous species it also produces a cigar-shaped hydrocotyl, with the 4 –sepals arching upwards at the top. Like the previous species the hydrocotyl spears into the mud and growth is initiated.

BRUGUIERA Lam.

gymnorhiza (L.) Lam. Black mangrove. A medium sized evergreen tree growing together with or on the landward side of the other mangroves. Also forms long

pendent hydrocotyls with a persistent claw-like calyx, falling into the mud and germinating. A common species in the sanctuary.

Combretaceae

COMBRETUM Loefl.

microphyllum Klotzsch. Burning bush. A scandent deciduous shrub or climber in dune scrub and at “Baobab valley” with red flowers produced in clusters along the branches as if on fire. Fruits typically 4-winged..

molle R.Br. ex G. Don. Velvet bushwillow. A small deciduous tree, rare in miombo woodland and only recorded along the interim fenceline.

pisoniiflorum (Klotzsch) Engl. Mozambique wingless combretum. A scandent woody deciduous shrub or climber only recorded from dune scrub along the estuary and thickets along the west side of the peninsula.. Fruit an oval nut. Rare.

LUMNITZERA Willd.

racemosa Willd. Springtide mangrove . A small tree with leathery obovate leaves usually found along the littoral zone on the landward side of the other deeper water mangrove species. Recorded widespread in suitable habitat.

Myrtaceae

EUGENIA L.

capensis (Eckl. & Zeyh.) Dune myrtle. A shrub with hard round leaves only recorded along the the dunes along the east coast northwards along the spit. Although slow growing can be used for dune reclamation. Fruit edible, purplish black when ripe.

natalitia Sond. Common forest myrtle. A shrub with small black fruits only recorded from dune scrub along the estuary and in the north.

PSIDIUM L.

guajava L.* Guava. Although also cultivated by the local inhabitants many plants of this shrub or small tree have become naturalized particularly along the eastern side of the peninsula but also along “Baobab valley”.

SYZYGIUM Gaertn.

cordatum Hochst. Water berry. A medium sized evergreen tree restricted in distribution to marshes and the perimeters of some pans and depressions mostly in the south and east of the sanctuary. Fruit edible.

cumini (L.) Skeels * Jamba or Jambolani plum. A large alien evergreen tree with drooping foliage cultivated for the fruit throughout the peninsula by the local inhabitants. Fruit used to make an alcoholic beverage. Apart from plants left behind when the owners move the species also appears to grow from dispersed seed.

guineense (Willd.) DC. Water pear. A medium sized to large tree with an evergreen foliage sometimes occurring together with the water berry along the fringes of marshes in the south. Uncommon. Fruit purplish-black and edible.

Melastomataceae

DISSOTIS Benth.

canescens (E. Mey. ex R.A. Grah.) Hook. f. An uncommon erect perennial herb with deep pink flowers growing along moist margins of pan in miombo woodland.

Onagraceae

LUDWIGIA L.

octovalvis (Jacq.) P.H. Raven. Shrubby ludwigia. An uncommon erect to sprawling perennial herb with yellow flowers found amongst grasses and sedges in moist areas around pans and marshes.

Araliaceae

CUSSONIA Thunb.

arenicola Strey A single stemmed low shrub only recorded from around Jane marsh in almost closed canopy miombo woodland. Can be regarded as rare.

Apiaceae

HYDROCOTYLE L.

bonariensis Lam.* An alien, prostrate, rhizomatous, evergreen herb with peltate leaves and a branched greenish inflorescence. Uncommon in seasonally moist to moist soils along marshes in the east.

CENTELLA L.

asiatica (L.) Urb. * Marsh pennywort. An uncommon, alien, prostrate, evergreen rhizomatous herb with subpeltate leaves and greenish flowers found in moist soil around marshes and wetlands.

Plumbaginaceae

PLUMBAGO (Tourn.) L.

zeylanica L. Deciduous semi-scandent shrub in bushclumps in miombo woodland. Flowers white to creamy white. Uncommon.

Sapotaceae

INHAMBANELLA (Engl.) Dubard

henriquesii (Engl. & Warb.) Dubard. Inhambanella milkwood. A medium sized evergreen tree only recorded from dune thicket/ scrub along the estuary. Rare.

MANILKARA Adans.

concolor (Harv. Ex C.H. Wr.) Gerstner. Zulu milkberry. A shrub or small tree locally common in dune scrub along the estuary and in the north. Fruits oval, fleshy, orange to red when ripe and edible.

mochisa (Bak.) Dubard. Lowveld milkberry. A spreading shrub only recorded in dune scrub along the estuary. Leaves crowded at the ends of branches. Fruit ovoid, fleshy, yellow when mature. Flesh red and milky, edible.

MIMUSOPS L.

caffra E. Mey. ex A. DC. Coastal milkwood. A common shrub or small tree throughout the peninsula but perhaps most common in dune scrub along the estuary and at the northernmost tip of the peninsula. A common constituent of bushclumps. Fruit ovoid and orange when mature, edible.

obtusifolia Lam. Round fruited milkwood. A small to medium sized tree with dense rounded crown and obovate leaves growing in dune scrub along the estuary. Fruit round, yellow to orange when mature.

SIDEROXYLON L.

inerme L. White milkwood. A common shrub or tree in dune thicket/ scrub along the former beach terraces in the north and along the estuary. Fruit round to ovoid berries purplish-black when mature. Various parts of the tree are used in local

medicine.

Ebenaceae

DIOSPYROS L.

inhacaensis F. White. Zulu jackalberry. An uncommon coppicing shrub or small tree in dune scrub and thicket. A RDB species listed as Data Deficient (Golding in press).

natalensis (Harv.) Brenan. Small-leaved jackalberry. A rare shrub in dune thicket/scrub along the estuary. Fruits resemble small acorns.

rotundifolia Hiern. Dune jackalberry. A very common dense shrub or small tree throughout the peninsula, mostly as an important constituent of bushclumps but especially in dune scrub along the estuary, in the north and the spit. Fruits very attractive apple-like, shiny red with persistent calyx. Essential for dune reclamation and garden plant.

EUCLEA Murray.

natalensis A. DC. Large leaved guarri. A common shrub in bushclumps throughout the miombo woodland. Roots used in traditional medicine.

racemosa Murray. Sea guarri. A shrub or mostly a small tree with shiny olive green wavy leaves found in bushclumps and especially dune scrub along lowlands in the area. Common.

Oleaceae

JASMINUM L.

abyssinicum Hochst. ex DC. An uncommon perennial herbaceous climber with white flowers found in dune scrub along the estuary and former beach terrace at the northern end.

Salvadoraceae

SALVADORA Garcin ex L.

persica L. Mustard bush. A scandent shrub with olive green leaves commonly found in bushclumps throughout miombo woodland and in dune scrub along the coast. Fruit pink to scarlet when mature and edible.

Loganiaceae

STRYCHNOS L.

decussata (Pappe) Gilg. Cape teak. A bushy shrub or small tree commonly found in dune scrub and thicket rarely elsewhere. Fruit round, fleshy about 1,5 cm in diameter, orange to red when mature. Roots have medicinal value.

henningsii Gilg. Coffee-bean strychnos. A shrub or small shrubby tree found in dune scrub along the estuary. Rare. Fruit almost spherical, fleshy, up to 1,2 cm in diameter turning yellow-orange and on maturity purplish-black. The bark has medicinal uses.

madagascariensis Poiret. Black monkey orange. A common shrubby tree, often many-stemmed from the base. Widespread throughout the sanctuary especially in miombo woodland. Fruits large, round, hard-shelled, yellow on maturity. The fruit is edible.

potatorum L. f. Grape strychnos. A shrub or small tree with large leaves and inedible black, grape sized fleshy fruit. According to Palgrave (1984) the bark and

roots, when pounded, are used as a fish poison.

spinosa Lam. The most common and widespread strychnos in the sanctuary being found throughout. Characterised by the opposite spines in the leaf axils and large woody, round fruits green at first, turning yellow at maturity. Fruit edible, but astringent. Parts of the plant have medicinal properties.

Gentianaceae

SEBAEA Soland.

sp. An erect annual deciduous herb with white flowers growing in freshwater marsh along the western boundary.

Menyanthaceae

NYMPHOIDES Hill

thunbergiana (Griseb.) Kuntze. A perennial hydrophyte with floating leaves and yellow flowers only recorded from perimeter of lake below dunes in the south east near Jane marsh.

Apocynaceae

ANCYLOBOTRYS Pierre

petersiana (Klotzsch) Pierre. A common evergreen herbaceous climber widespread in miombo woodland and dune scrub. Fruit round orange on maturity, edible.

CARISSA L.

praetermissa Kupicha. An erect, evergreen shrub with bifurcated spines and large white flowers only recorded from dune scrub in the north. Appears to be rare and is listed as a RDB species, Data Deficient (Golding in press.)

CATHARANTHUS G. Don

roseus (L.) G. Don.* Periwinkle. An alien evergreen herb with pink or white flowers mostly found in areas of cultivation or disturbance. Widespread. Used medicinally by the local people.

LANDOLPHIA Beauv.

kirkii Dyer. An evergreen robust climber to the tops of trees in bushclumps and dune scrub. Common. Fruits round orange and edible.

TABERNAEMONTANA L.

elegans Stapf. A deciduous shrub or small tree with white flowers and large paired fruits. Locally common in dune scrub along the estuary and in the west centre of the reserve in "Baobab valley". Also occurs in the south around Jane marsh.

Asclepiadaceae

CYNANCHUM L.

gerrardii (Harv.) Liedtke. A widespread succulent, almost leafless herbaceous climber in bushclumps in miombo woodland.

sp. A perennial twining and climbing herb with heart-shaped leaves, growing on dune scrub and thicket along the east coast. Flowers yellow with black and white corona. Appears to be locally common.

DUVALIA Haw.

polita N.E. Br. A rare prostrate, rhizomatous succulent herb with deep maroon flowers occurring in dune scrub.

GOMPHOCARPUS R. Br.

fruticosus (L.) Ait. f. Milk weed. An erect annual to perennial deciduous woody herb with milky latex usually found in disturbed sites. Uncommon in the sactuary.

SARCOSTEMMA R. Br.

viminale (L.) R. Br. Caustic vine. A common perennial leafless, succulent climber, widespread in miombo woodland.

SECAMONE R. Br.

filiformis (L. f.) J.H. Ross. An evergreen, perennial herbaceous to woody climber mostly found in dune scrub along the estuary and in the north. Mature stems winged.

gerrardii Harv. ex Benth. An uncommon perennial woody climber in the sanctuary. Recorded from dune scrub along the estuary.

Convolvulaceae

IPOMOEA L.

obscura (L.) Ker. var. *fragilis* (Choisy) A. Meeuse. A perennial prostrate herbaceous creeper occurring in open miombo woodland. Uncommon.

pes-caprae (L.) R. Br. ssp. *braziliensis* (L.) Van Ooststr. Goats foot ipomoea. Perennial prostrate deciduous creeper forming loose mats along the littoral zone. An important sand stabilizer. Flowers purplish.

pes-tigridis L. Annual herbaceous climber widespread but uncommon in the sanctuary.

JACQUEMONTIA Choisy

tamnifolia (L.) Griseb. An annual creeper or climber most common on fallow land. Flowers blue.

MERREMIA Dennst.

tridentata (L.) Hall f. Perennial prostrate creeper with yellow flowers, widespread in miombo woodland.

Boraginaceae

CORDIA L.

sp. cf. *goetzei* Gurke. Blue bark cordia. A shrub or small tree with small orange berries growing in dune scrub along the estuary and at the northern tip of the peninsula.

EHRETIA L.

amoena Klotzsch. Sandpaper bush. A deciduous shrub with large rough scabrid leaves growing in the west central sector of the reserve behind the Community Harbour in miombo woodland.

rigida (Thunb.) Druce ssp. *nervifolia*. Puzzle bush. A perennial deciduous shrub up to 40 cm high with mauve flowers. Rare only being recorded from the vicinity of "Baobab valley".

Verbenaceae

AVICENNIA L.

marina (Forssk.) Vierh. White mangrove. A small to medium sized tree characterized by the numerous pneumatophores or pencil roots around the plants. Usually on the landward side of the other mangrove species with some exceptions. The most common and widespread of the mangroves along the peninsula, with particularly fine stands at the upper end of the estuary. The timber has been used for boat building and hut construction.

CLERODENDRUM L.

capitatum A small common shrub with a terminal spike of long tubular white flowers subtended by mauve to purplish bracts. Only recorded from the vicinity of “Baobab valley”, in the south near the Jane marsh and in the east near the airstrip.

glabrum E. Mey. A shrub or small tree with leaves in whorls of three and a terminal head of small white flowers. Widespread throughout the sanctuary but most common around areas of cultivation and along the Spit.

sp. A shrub mostly found in association with bushclumps. Widespread in miombo woodland. Flowers long tubular and white with purple anthers.

LIPPIA L.

javanica (Burm. f.) Spreng. An uncommon perennial, semi deciduous woody herb or shrub found mostly around areas of cultivation in Baobab valley but also scattered elsewhere in miombo woodland. Flowers small creamy white in terminal spikes. Crushed leaves typically aromatic.

PHYLA Lour.

nodiflora (L.) Greene var. *nodiflora*. A prostrate creeping mat-forming stoloniferous herb, in moist areas around pans and marshes. Purple to mauve flowers heads.

PRIVA Adans.

meyeri Taub. & Spach. An uncommon evergreen perennial herb with bluish flowers usually occurring in bushclumps and areas of cultivation. Fruit burred to assist in seed dispersal.

VITEX L.

amboniensis Guerke. A deciduous shrub or small tree widespread in miombo woodland, particularly a constituent of bushclumps, uncommon in dune scrub.

Lamiaceae

HEMIZYGIA (Benth.) Briq.

sp. An erect perennial herb found growing under the shade of trees in a former bushclump. Rare.

HOSLUNDIA Vahl

opposita Vahl. An evergreen woody herb or shrub with opposite leaves and orange berry-like fruits, uncommon but widespread, especially in “Baobab valley”.

PLECTRANTHUS

sp. A small prostrate plectranthus with soft hairy semi-fleshy leaves and blue flowers only recorded in thicket along the steep western dune slopes south of Msasa camp.

Solanaceae

CAPSICUM L.

frutescens L.* African chilli. An uncommon semi-deciduous alien shrub with red fruits. used extensively in flavouring and spicing food. Only recorded in dune scrub along the estuary.

SOLANUM L.

sp. A woody evergreen prostrate or decumbent herb growing in sand along the upper littoral zone along the estuary. Very rare.

sp. A woody herb or shrub with green leaves concentrated distally and with round, red, berry-like fruits when ripe recorded from dune thicket in the north.

Scrophulariaceae

ALECTRA Thunb.

sp. An uncommon parasite of vascular plants recorded in a bushclump in miombo woodland. Flowers orange to yellow.

STRIGA Lour.

asiatica (L.) Kuntze. A semi-parasitic herb growing in fallow lands in miombo woodland. Flowers orange-red.

bilabiata (Thunb.) Kuntze. A rare erect semi-parasitic herb with mauve flowers growing in miombo woodland.

elegans Benth. An uncommon semi-parasitic herb of open miombo woodland. Flowers bright red.

VERONICA L.

anagallis-aquatica L. A prostrate annual mat-forming herb of moist places very common around pans, lakes and marshes. Flowers blue.

Bignoniaceae

TECOMARIA (Thunb.) Spach.

capensis (Thunb.) Spach. Cape honeysuckle. An evergreen scandent shrub with orange-red flowers recorded from a bushclump along the western side of the peninsula. Appears to be rare.

Pedaliaceae

DICEROCARYUM Bojer

eriocarpum (Decne.) Abels. Prostrate semi-deciduous perennial mat-forming herb with large pink snapdragon-like flowers and flat two-spine fruit, widespread in miombo woodland. Leaves when crushed produce soap like lather and are used in soap making.

SESAMUM L.

alatum Thonn. An erect annual herb with pink flowers, a ruderal of cultivation and disturbed conditions.

Lentibulariaceae

UTRICULARIA L.

stellaris L. f. . Bladder wort. A perennial evergreen aquatic submerged herb supported by rings of air filled sacs, with emergent yellow flowers. Common in most pans along the peninsula.

sp. *arenaria* A. DC. A small, erect < 80 mm tall almost leafless annual herb with mauve flowers. Only found around the littoral zone of pans.

sp. A small erect annual herb growing amongst sedges along the ecotone between fresh- and saltwater. Flowers very small, orange.

sp. A dense mat-forming, partially submerged, perennial, hydrophyte with emergent yellow flowers. Appears to be locally common in pans and marshes in the south.

Acanthaceae

ASYSTASIA Blume.

gangetica (L.) T. Anders. An erect semi-deciduous, perennial herb with white flowers speckled with mauve in the throat. Widespread and common, usually found in and around bushclumps in miombo woodland and in dune scrub along the coast. Plants exposed to salt spray have developed thickened fleshy leaves.

BARLERIA L.

crossandriiformis C.B. Clarke. An erect woody evergreen herb or subshrub with orange flowers in terminal spikes. Common in dune scrub along the estuary and in the north.

repens Nees. A perennial evergreen erect to scandent herb with large tubular red flowers. Common in bushclumps in miombo woodland and in dune scrub.

sp. cf *gueinzii* Sond. An erect perennial evergreen herb of dune scrub in the north and east of the peninsula. Flowers in unilateral cymes, mauve.

BLEPHARIS Juss.

maderaspatensis (L.) B. Heyns ex Roth. ssp. *maderaspatensis* A prostrate mat-forming perennial herb with white flowers found in open miombo woodland.

JUSTICIA L.

protracta (Nees) T. Anders. An erect to sprawling perennial herb with white flowers with some mauve speckling on the lip. Mostly confined to bushclumps in miombo woodland. Common.

sp. cf *campylostemon* (Nees) T. Anders. An erect perennial herb with small pinkish flowers. Rare in bushclumps and closed canopy miombo woodland, mostly in the south.

THUNBERGIA Retz.

atriplicifolia E. Mey. ex Nees. An uncommon erect herb or climber in miombo woodland.

Rubiaceae

AGATHISANTHEMUM Klotzsch

bojeri Klotzsch ssp. *bojeri* An erect herb or subshrub with white or greenish white flowers mostly found under moist conditions around the perimeter of pans and marshes.

ANCYLANTHOS Desf.

monteiroi Oliv. A much branched shrub with leaves produced on short side branches. Flowers white turning yellow. Restricted in distribution to areas of dune scrub and thicket.

CANTHIUM Lam.

inerme (L. f.) Kuntze . Turkey berry. A much branched spinose shrub usually scandent in thickets or bushclumps in miombo woodland

mundianum Cham. & Schlechtd. An evergreen shrub usually found in miombo woodland, in bushclumps and more rarely in the open.

CATUNAREGAM Wolf

spinosa (Thun.) Tirvengadam. ssp. *spinosa* Thorny bony apple. A spiny shrub, multistemmed, with fruits hard and round, topped by a persistent calyx. Common in thickets and bushclumps in miombo woodland.

COFFEA L.

racemosa Lour. An uncommon shrub found in bushclumps in miombo woodland.

GARDENIA Ellis

volkensii K. Sch. A much branched shrub with leaves crowded at the ends of short side branches. Fruit large, oval and ribbed. Rare but widespread in miombo woodland.

KOHAUTIA Cham. & Schlechtd.

virgata (Willd.) Brem. An erect annual herb with white flowers, widespread in miombo woodland, particularly in disturbed areas.

sp. An annual decumbent herb with blue flowers growing mainly in dune scrub and thicket.

OXYANTHUS DC.

latifolius Sond. Zulu loquat. A large leaved deciduous perennial shrub, characterized by the asymmetric leaf base and large loquat like fruit produced terminally. Restricted to bushclumps and dune scrub including thickets in Baobab valley.

PAVETTA L.

catophylla ? K. Schum. A small shrub with black berry-like fruits at the apex of branches. Uncommon overall although locally common in open miombo woodland.

revoluta Hochst. An uncommon shrub found in bushclumps in miombo woodland and in dune scrub. Listed in the RDB as Data Deficient (Golding in press).

sp. A low shrub with black berry-like fruit, growing along dunes on the Spit in the company of *Eugenia capensis* and *Diospyros rotundifolius*. Locally common.

sp. A shrub producing long branches with clusters of black berry-like fruit terminally, growing under moist conditions along the estuary.

PHYLOHYDRAX Puff

carnosa (Hochst.) Puff. An evergreen succulent, perennial, prostrate mat-forming herb with white flowers recorded on dunes along the east coast. Locally rare.

PSYDRAX Gaertn.

locuples (Schum.) Bridson. An evergreen shrub of bushclumps and dune scrub. Widespread but uncommon.

obovata Bridson. A large multi-stemmed shrub found in bushclumps throughout the area. Also found occasionally in dune scrub.

ROTHMANNIA Thunb.

globosa (Hochst.) Keay. A small tree found in dune thicket under shady conditions. Fruit round and yellow.

SPERMOCOCE Gaertn.

senensis (Klotzsch) Hiern. An erect to decumbent herb with small white flowers crowded in leaf axils, found in open miombo woodland.

TARENNA Gaertn.

junodii (Schinz) Bremek. Climbing dune tarennia. An uncommon shrub in bushclumps and dune scrub.

littoralis (Hiern) Bridson. Dune tarennia. A much branched shrub common throughout the area.

TRICALYSIA A. Rich. ex DC.

capensis (Meissn.) T.R. Sim. Velvet tricalysia. A small shrub common in bushclumps and dune scrub throughout the sanctuary.

lanceolata (Sond.) Burt Davy. Common tricalysia. A shrub of dune scrub, with shiny dark green leaves. Uncommon.

sonderiana Hiern. Dune tricalysia. An evergreen shrub of thickets and bushclumps along the western side of the peninsula. Uncommon. Fruits purplish.

VANGUERIA Juss.

infausta Burch. Wild medlar. A deciduous shrub with large hairy leaves and green flowers, found in dune scrub and bushclumps in miombo woodland.

Cucurbitaceae

CITRULLUS Eckl. & Zeyh.

lanatus (Thunb.) Matsumura & Nakai. Tsamma melon. A deciduous prostrate creeper producing large round melons, which are edible but tasteless. Found in areas of cultivation.

COCCINIA Wight & Arn.

sp. A herbaceous climber with pale orange flowers, found in dune scrub. Uncommon.

CUCUMIS L.

myriocarpus Naudin ssp. *myriocarpus*. A prostrate creeping, annual herb with small yellow flowers and striped, weakly spinose globose fruits only recorded along the littoral margin of dune scrub in the north.

MOMORDICA L.

balsamina L. A prostrate annual creeping or climbing herb forming mats on the ground. Widespread throughout the sanctuary these plants are particularly common in areas under cultivation. Fruits small and orange red.

Lobeliaceae

LOBELIA L.

sp. An erect, branched lobelia with blue flowers, only recorded around the littoral zone of pans. Uncommon.

Goodeniaceae

SCAEVOLA L.

plumieri (L.) Vahl .A perennial evergreen succulent herb, gregarious and an important sand stabilizer along the upper littoral zone, often together with *Ipomoea pes caprae* and *Canavalia rosea*. Uncommon along the shores of the peninsula.

Asteraceae

BIDENS L.

bipinnata L. * Blackjack. An uncommon erect annual herb recorded from dune scrub.

biternata (Lour.) Merr. & Sherff. * Blackjack. An uncommon erect alien, annual herb, with deeply incised leaves. Uncommon fringing bushclumps.

pilosa L.* Blackjack. Alien erect annual herb mostly associated with disturbed areas especially those under cultivation.

BLUMEA DC.

mollis (D. Don) Merr. An erect hairy annual herb of moist sites around pans and marshes.

BRACHYLAENA R.Br.

discolor DC. A small evergreen tree, with bicoloured leaves. Rare in the sanctuary and only recorded from thickets along the western side of the peninsula.

huillensis O. Hoffm. ? A small tree with bicoloured leaves found in a impoverished thicket near the Community Harbour.

CONYZA Less.

bonariensis (L.) Cronquist * An uncommon erect annual herb found in areas under cultivation or fallow land.

CRASSOCEPHALUM Moench

crepidioides (Benth.) S. Moore. An erect annual herb with deeply incised leaves and decumbent orange flowers. Uncommon growing under moist conditions around pans.

HELICHRYSUM Mill.

candolleianum H. Buck An erect to decumbent annual herb with grey leaves. Uncommon but widespread in open miombo woodland.

kraussii Sch. Bip. An erect shrub with bicoloured leaves and straw-coloured inflorescence occurring widely in open miombo woodland. Uncommon.

sp. A small perennial grey-leaved mat-forming herb with white bracts subtending

the flowers. Found in open miombo woodland.

KLEINIA Mill.

fulgens Hook. f. A bluish-green perennial succulent herb with reddish-orange flowers. Only recorded in mature *Brachystegia* woodland bordering the marshes in the south. Rare.

LAUNAEA Cass.

sarmentosa (Willd.) Sch. Bip. Ex Kuntze. A stoloniferous prostrate, mat-forming herb only recorded from eastern dunes along the Spit and coast. Flowers yellow. Assists in stabilising sand along the dunes. According to Mogg (1969) the leaves are harvested and cooked as spinach.

MIKANIA Willd.

sp. A herbaceous climber with white flowers, commonly growing around pans and marshes, climbing up grasses and shrubs.

NIDORELLA Cass.

resedifolia An erect ruderal herb with yellow inflorescence. Annual. Only recorded from the vicinity of Baobab valley, in areas of cultivation.

PLUCHEA Cass.

dioscoridis (L.) DC. A woody herb or shrub with small purplish flowers, growing in moist soil at one end of a pan. Appears to be uncommon.

SENECIO L.

viminalis Bremek. A perennial scandent succulent herb with a striate stem and white flowers usually associated with bushclumps in miombo woodland.

VERNONIA Schreb.

centaureoides Klatt . An erect annual or perennial herb with purple flowers.

Widespread in miombo woodland throughout the sanctuary.

colorata (Willd.) Drake . A common shrub with large leaves, sometimes scandent, with a white and mauve capitate inflorescence. Mostly found in or around bushclumps in miombo woodland.

* denotes alien species

ANNEX 2. AN ANNOTATED CHECLIST OF THE MAMMALS OF THE VILANCULOS COASTAL WILDLIFE SANCTUARY

ORDER INSECTIVORA

Family Macroscelididae

PETRODROMUS Peters

tetradactylus Peters. Four-toed elephant shrew. Recorded from Bazaruto Island where they were common (Downs & Wirminghaus 1990) and likely to occur on the peninsula. Some tracks of what could have been made by this species were seen in dune thicket in the east.

Family Soricidae

CROCIDURA Wagler

fuscmarina (Heuglin). Tiny musk shrew. This small shrew has been found on the Bazaruto Archipelago (Downs & Wirminghaus op. cit) and is also likely to occur along the peninsula.

hirta Peters. Lesser red musk shrew. This reddish-brown shrew was recorded from a dense sedge community fringing a pan in open miombo woodland.

Family Chrysochloridae

CALCOCHLORIS Mivart

o. obtusirostris (Peters). Yellow golden mole . The burrows of what is likely to be this species has been seen widespread over the sanctuary, frequently in areas of cultivation, and even onto the littoral zone along the estuary. Fossorial, it is usually only active following rains, making it difficult to obtain a specimen.

ORDER CHIROPTERA

Suborder Microchiroptera

Family Vespertilionidae

EPTESICUS Rafinesque

capensis (A. Smith). A small bat which could belong to this species was seen around both the Msasa and Jacana camps on occasions. This species is known to take refuge under the loose bark of trees and in holes in trees, of which there are many available.

Family Molossidae

TADARIDA Rafinesque

pumila Cretzschmar. Little free-tailed bat. Has been recorded from Bazaruto Island (Downs & Wirminghaus op. cit) where there are many dwellings with suitable refuges. Although it may forage on the peninsula no apparent refuges have been identified here.

ORDER PRIMATES

Family Galagidae

GALAGO E. Geoffroy

crassicaudatus E. Geoffroy Thicktailed bushbaby . A nocturnal mammal that has been recorded from the sanctuary. During the day it roosts high in a tree. Difficult to spot from below. Its presence is usually confirmed by the scream like call which it utters at night. It is clumsy on the ground and in the trees moving slowly through the branches.

senegalensis E. Geoffroy. Nightape. The Nightape has been recorded from Bazaruto Island (Downs & Wirminghaus 1990) but has not yet been seen on the peninsula. This occurrence may be the result of a translocation.

Family Cercopithecidae

PAPIO Erxleben

ursinus Kerr. Chacma baboon. The Chacma baboon has only been recorded along the eastern littoral of the peninsula from the Lighthouse southwards. It appears to be rare in the sanctuary.

CERCOPITHECUS L.

albogularis Sykes. Samango monkey. The Samango monkey has been recorded from the island of Bazaruto (Downs & Wirminghaus op cit.). It has as yet not been recorded from the sanctuary where habitat appears to be marginal for the species.

pygerythrus (F. Cuvier) Vervet monkey . Vervet monkeys have been recorded at various sites in the sanctuary, mostly in dune thicket along the estuary and in the north of the peninsula. This species has not been recorded from the Bazaruto Archipelago.

ORDER CARNIVORA

Family Felidae

FELIS L

catus Linnaeus. Feral cat. Feral domestic cats have been seen widespread on the reserve as a result of the distribution of the human habitation. The species has also been recorded from the Bazaruto Archipelago.

Family Mustelidae

ICTONYX Kaup

striatus (Perry). Striped polecat. Spoor of what could be the Striped polecat has been recorded from miombo woodland but it appears to be rare.

Family Viverridae

VIVERRA Linnaeus

civetta Schreber. Civet The Civet has not been seen on the reserve although the skins of individuals were observed in the huts of some villagers (DS).

GENETTA Oken

tigrina (Schreber) Larg-spotted genet . The Large spotted genet has been seen on the reserve and appears to be common and widespread judging from the amount of

spoor seen. Perhaps the most common predator in the sanctuary.

GALARELLA Gray

sanguineus (Ruppell) Slender mongoose The Slender mongoose has also been widely observed throughout the sanctuary during this survey (JN, DS). A solitary and diurnal species with wide habitat tolerances.

ATILAX F. Cuvier

paludinosus G. Cuvier Water mongoose Spoor and sightings of this animal have been recorded throughout the wetlands of the sanctuary frequently foraging among mangroves and along the seashore. The species feeds largely on crabs.

MUNGOS E. Geoffroy & C. Cuvier

mungo Gmelin Banded mongoose . A gregarious species which has been seen on occasions in the sanctuary (DS, JN), while spoor was seen during this survey. It appears to be uncommon and no dens have yet been found.

ORDER ARTIODACTYLA

Family **Suidae**

POTAMOCHOERUS Gray

porcus (Linnaeus). Bushpig Signs of Bushpig have only been recorded from the southern part of the sanctuary where fewer people are found.

Family **Bovidae**

CEPHALOPHUS A. Smith

natalensis A. Smith Red duiker. Uncommon and mostly restricted to bushclumps and dune thicket in the sanctuary. Has also been recorded from the Bazaruto National park (Downs & Wirminghaus 1990)

NEOTRAGUS H. Smith

moschatus Von Dueben). Suni . Although the presence of the Suni on the peninsula has not been positively confirmed, the existence of spoor which could belong to this species have been seen in dune scrub in the north and east. The species has been translocated to Bazaruto and Benguera Islands (Downs & Wirminghaus op. cit.)

SYLVICAPRA Ogilby

grimmia Linnaeus. Grey duiker. A common antelope occurring throughout the sanctuary including the Spit.

RAPHICERUS H. Smith

campestris (Thunberg) Steenbok . These little antelope occur widespread throughout the sanctuary with the exception of dune thicket and marshy areas.

TRAGELAPHUS Blainville

scriptus (Pallas). Bushbuck. Although the Bushbuck has not been recorded on the the peninsula the species is known to occur on Bazaruto Island. It may still be found in the less inhabited south.

angasii Gray. Nyala. According to unsubstantiated reports, sightings of Nyala were made from the air during an over flight of the peninsula. Such sightings have yet to be verified.

ORDER LAGOMORPHA

Family **Leporidae**

LEPUS Linnaeus

saxatilis F. Cuvier. Scrub hare. Hares appeared to be largely absent from the northern parts of the sanctuary, most signs being found in the south close to the Jane marsh.

ORDER RODENTIA

Family **Bathyergidae**

CRYPTOMYS Gray

hottentotus (Lesson). Common mole rat. Few signs of the presence of this rodent could be seen along the peninsula. Those that could be attributed to this species were inconclusive. Has been recorded by DS.

Family **Pedetidae**

PEDETES Illiger

capensis Forster Springhare. A rare mammal in the reserve, signs of digging were found near the Community Harbour, burrows were recorded along the track between the Clinic and Jane marsh, where signs of persecution were found. Spoor has also been seen along the road to Mazerette.

Family **Sciuridae**

PARAXERUS Forsyth Major

cepapi (A. Smith) Bush squirrel. The presence of the Bush squirrel on the reserve has been confirmed, (JN) but the species appears to be very rare.

*palliatu*s (Peters) Red squirrel. Red squirrels have been recorded from the sanctuary in patches of miombo woodland on the track to the community harbour (DS, LR.).

Family **Thryonomyidae**

THRYONOMYS Fitzinger

swinderianus (Temminck) Greater cane rat. This large rodent is mostly restricted to dense vegetation around wetlands in the sanctuary. Appears to be widespread although most signs observed, were old.

Family **Muridae**

PELOMYS Peters

fallax (Peters). Groove-toothed rat. The Groove-toothed rat has been recorded from dense sedge beds around the perimeter of marshes and probably occurs in suitable habitat throughout the sanctuary.

GRAMMOMYS Thomas

dolichurus Smuts Forest mouse. Although uncommon the Forest mouse has been seen around Msasa and Jacana camps and is likely to occur throughout the reserve in suitable habitat.

MUS Linnaeus

minutoides A. Smith. Pygmy mouse. The presence of this species on the reserve was established from a single immature individual captured along the ecotone between miombo woodland and dense sedge community around the periphery of a pan. It is however likely to be more common. Has also been recorded from the Bazaruto national park (Downs & Wirminghaus 1990).

PRAOMYS (Mastomys) Thomas

natalensis (A. Smith). Multimammate mouse. A common rodent recorded commonly around the marsh at Jacana camp and is likely to be abundant in areas of cultivation and human habitation. Was captured in sedge stands around the perimeter of the marsh. Has also been recorded from the Bazaruto National park (Downs & Wirminghaus op. cit.)

RATTUS Fischer

rattus (Linnaeus). Black rat. The Black or House rat has been recorded from the Bazaruto Archipelago to where it has been inadvertently translocated probably in cargo transported from the mainland by dhows (Downs & Wirminghaus op. cit.). Not as yet recorded from the peninsula but could spread to there in time.

AETHOMYS Thomas

chrysophilus (De Winton). Red veld rat. A species recorded from bushclumps in miombo woodland and appears to be common in dune thicket in the north of the peninsula. Appears to be restricted to these habitats.

DENDROMUS A. Smith

melanotis A. Smith. Grey climbing mouse. Individuals of this species were recorded from *Hyphaene* palm and sedge stands along the perimeter of a pan in miombo woodland. The individuals differed from the normal in being more reddish-brown than grey and in the dark dorsal stripe extending onto the head in all specimens examined.

CRICETOMYS Waterhouse

gambianus Waterhouse. Giant rat. Burrows of this species were found in thicket adjacent to cultivated areas in the west and southern parts of the sanctuary. It appears to be rare in the sanctuary.

TATERA Lataste

leucogaster (Peters). Bushveld gerbil. One of the commonest rodents in the sanctuary the species appears to be widespread in miombo woodland judging from the distribution of burrows. Has also been recorded from the Bazaruto National Park.

ORDER SIRENIA

Family **Dugongidae**

DUGONG Lacepede

dugon (P.L.S. Muller) Dugong

Not recorded from the shallow waters surrounding the peninsula but has been seen in channels between the sanctuary and the mainland and the Bazaruto Archipelago. A RDB species, its survival is threatened by indiscriminate fishing practices which have largely led to its disappearance from other parts of the Mozambique coast (Dutton pers comm.).

DS Dave Smart; JN Jenny Newenham; LR Larry Routledge.

ANNEX 3.1: ANNOTATED GENERAL LIST OF BIRD SPECIES OF VILANCULOS COASTAL WILDLIFE SANCTUARY

The survey done by Dr WR Tarboton in June 2002 when 160 species were recorded in the Sanctuary provides the primary source of information used in compiling this species list. June is a poor time of the year to undertake such a survey and many species went unrecorded; the migrants were absent, bird song was minimal, and so on. The June list has therefore been supplemented as follows:

- By information obtained from the recently-published southern Mozambique Atlas (Vincent Parker, 2000, *The atlas of the birds of Sul do Save, southern Mozambique*, published by the Avian Demography Unit, University of Cape Town). This lists 155 species that were found during 1994-1998 in the two quarter-degree squares (2235AB and 2235AD) that cover the San Sebastian peninsula and it adds 46 species to the June list.
- By sightings made during the past year by members of the VCWS staff who have lived at the site (DS - Dave Smart; JN - Jenny Newenham; LR - Larry Routledge) - this adds a further 23 species to the master list. Note that two species reported - Madagascar Squacco Heron and Pied Mannikin - have not been included in the list, pending their confirmation. A 24th species was added by Neils Jacobsen (NJ) later in June after I left.

- By information published by Kohler & Kohler (1996, The Bazaruto Archipelago, Mozambique, a site of potential international importance for Palearctic waterbirds. *Ostrich* 67:165-167) on counts they did here of waders and terns in the Januaries of 1996, 1997 and 1998 - these add 10 more species to the list.

Together, these sources provide a bird species list for the San Sebastian peninsula that currently numbers 240; further investigation will undoubtedly add many more.

Terms used below to indicate relative abundance of the species recorded in June are as follows: **very common** - encountered >20 times during June survey; **common** - encountered 10-19 times during June survey ; **fairly common** - encountered 4-9 times during June survey; **scarce** - encountered fewer than 4 times during June survey; species encountered only once or twice are indicated as such. This is the best estimate that can be made of species abundance under the circumstances, and no comment is possible on the status (i.e. whether they are residents, seasonal visitors or erratic vagrants) given the limited time-frame of observation.

Species that are Red Data-listed, either at an international level (Collar et al 1994 *Birds to watch - The world list of threatened birds*) or at a regional level (Barnes, ed, 2000 *The Eskom Red Data book of birds of South Africa, Lesotho and Swaziland*) are identified as such in the text..

The species are numbered and listed in the order they appear in *Roberts Birds of Southern Africa*, 6th edition (Maclean 1993) and the names used are mostly those that appear in this reference.

008 **Dabchick** *Tachybaptus ruficollis*

Common in June, when small numbers (max. 7) were found on most freshwater pans and lakes.

049 **White Pelican** *Pelecanus onocrotalus*

Not recorded in June, but occurrence in the area reported by DS and JN; also listed for 2235AB in Atlas. Not globally threatened, but listed as 'near-threatened' in South Africa.

050 **Pink-backed Pelican** *Pelecanus rufescens*

Found at two sites in June (4 birds at Palmerinha mangroves, 7 birds on Lake Manhale). An uncommon species in southern Africa with only two known breeding populations, both small (in Zululand and Okavango-Chobe); although not ranked as globally threatened, it is listed as 'vulnerable' in South Africa. Lake Manhale provides a potential breeding site for this colonial-nester and, because the birds seen here were perched close to old nests, there is a possibility that breeding may occur here when conditions are right. (See text; Volumes 2 and 4)

055 **White-breasted Cormorant** *Phalacrocorax carbo*

Fairly common in June, seen on both coastal and inland waterbodies; most seen on Lake Manhale where 22 were counted; breeds at this site.

058 Reed Cormorant *Phalacrocorax africanus*

Common in June, mainly on freshwater lakes and pans, a few at sea; largest concentration was on Lake Manhale where 397 were counted; breeds at this site.

060 African Darter *Anhinga rufa*

Common in June; found in small numbers on most lakes and pans, with a very large concentration of 385 birds counted on Lake Manhale; breeds at this site (53 old nests counted here).

061 Greater Frigatebird *Fregata minor*

Not recorded in June but one recorded by LR in the bay in front of Dugong Lodge after a storm in Sep-Oct 2001.

062 Grey Heron *Ardea cinerea*

Common in June and found in small numbers (1-5 birds), both along the coast and on inland water bodies.

064 Goliath Heron *Ardea goliath*

Once recorded in June, a single bird on Lake Manhale.

065 Purple Heron *Ardea purpurea*

Common in June, with single birds present on most freshwater sedge- and reed-pans.

066 Great White Egret *Casmerodius albus*

Common in June, with single birds or small numbers found on both inland and coastal waters.

067 Little Egret *Egretta garzetta*

Common in June, especially along shores of estuaries but also found on inland freshwaters.

068 Yellow-billed Egret *Egretta intermedia*

Scarce in June, with single birds seen at a few freshwater pans.

071 Cattle Egret *Bubulcus ibis*

Not recorded in June (being a migrant it is absent in winter), but its occurrence in the area was reported by JN; also listed for 2235AD in the Atlas.

072 Squacco Heron *Ardeola ralloides*

Apparently scarce, being only once encountered during the June survey - a single bird on a sedge-marsh near the community harbour.

074 Green-backed Heron *Butorides striatus*

Fairly common in June, with single birds found both in mangrove swamps and on edges of freshwater lakes.

075 Rufous-bellied Heron *Butorides rufiventris*

Scarce in June, with single birds found 3X on sedge- and grass-marshes.

076 Black-crowned Night Heron *Nycticorax nycticorax*

Not recorded in June, but occurrence in the area noted in the Atlas where it is listed for 2235AD.

081 Hamerkop *Scopus umbretta*

Scarce in June, with single birds encountered in a few places; also one disused nest found.

086 Woolly-necked Stork *Ciconia episcopus*

Scarce in June; single birds found in a few places; max. of 4 birds seen on estuary near lighthouse. Although not globally threatened, it is listed as 'near-threatened' in South Africa.

087 Open-billed Stork *Anastomus lamelligerus*

Fairly common in June, with small numbers encountered on several freshwater pans. Although not globally threatened, it is listed as 'near-threatened' in South Africa

088 Saddle-billed Stork *Ephippiorhynchus senegalensis*

Fairly commonly encountered in June, with a pair seen foraging in estuary near lighthouse and single birds elsewhere - the peninsula probably supports 3-4 resident breeding pairs. This species should be listed as being one of the 'charismatic' species of the peninsula. Although not ranked as globally threatened, it is listed as being 'endangered' in South Africa, where the entire population is estimated to be only 50-75 pairs. In this context, the San Sabastian population is important.

090 Yellow-billed Stork *Mycteria ibis*

Once recorded in June, a flock of 21 birds seen fishing in a drying-up freshwater pan near the community harbour. (Not globally threatened, but listed as 'near-threatened' in South Africa).

091 Sacred Ibis *Threskiornis aethiopicus*

Fairly common in June, present in small numbers on the shoreline and on inland waterbodies.

093 Glossy Ibis *Plegadis falcinellus*

Not recorded in June, but occurrence in the area noted in the Atlas where it is listed for 2235AD.

094 Hadedda Ibis *Bostrychia hagedash*

Fairly commonly encountered in June, but in small numbers.

095 African Spoonbill *Platalea alba*

Scarce in June, with a max. of 7 birds seen fishing together in a drying-up freshwater pan near the community harbour.

096 Greater Flamingo *Phoenicopterus ruber*

Common in June and found in considerable numbers in the tidal flats on the west (500 counted here), east (2400 counted here) and northern sides (2500 counted here) of the San Sebastian peninsula. Although it was not possible to determine the total number of birds at all these sites combined, the individual counts suggests a June population of 5000+. Based on these numbers and on its visual attractiveness, this species could be listed as one of the 'charismatic' species of the peninsula. It is not globally threatened, but is listed as 'near-threatened' in South Africa.

099 White-faced Duck *Dendrocygna viduata*

Common in June and present in small numbers (max. 25) on many freshwater lakes and pans.

101 White-backed Duck *Thalassornis leuconotus*

Fairly common in June and present on several of the freshwater pans that were covered in *Nymphaea*; max. of 10 birds counted at any one site.

102 Egyptian Goose *Alopochen aegyptiacus*

Only once recorded in June, a pair on a freshwater marsh in the south (Phase II area)

104 Yellow-billed Duck *Anas undulata*

Scarce in June, with 1-2 birds encountered at a few freshwater pans.

107 Hottentot Teal *Anas hottentota*

Not recorded in June, but occurrence in the area noted in the Atlas where it is listed for 2235AB.

108 Red-billed Teal *Anas erythrorhyncha*

Fairly commonly encountered in small numbers (max. Of 10) in June on freshwater pans.

113 Southern Pochard *Netta erythroptalma*

Recorded only once in June, a group of 4 birds on a freshwater pan near the community harbour.

114 Pygmy Goose *Nettapus auritus*

Common in June and found widely in the area on freshwater pans covered with *Nymphaea*; most were in pairs and the max. number seen on any one pan was 7 birds. This is one of the most 'charismatic' species of the area. Not globally threatened, but listed as 'near-threatened' in South Africa.

115 Knob-billed Duck *Sarkidiornis melanotos*

Scarce in June, being encountered only twice (2-3 birds) on freshwater pans.

116 **Spur-winged Goose** *Plectropterus gambensis*

Scarce in June, a few birds (max. 5) encountered on freshwater pans and marshes.

126 **Yellow-billed Kite** *Milvus aegyptius*

Not recorded in June, but occurrence in the area noted in the Atlas where it is listed for 2235AB and 2235AD; also reported by JN.

127 **Black-shouldered Kite** *Elanus caeruleus*

Scarce in June, with single birds encountered in open country near mashambas.

128 **Cuckoo Hawk** *Aviceda cuculoides*

Not recorded in June, but occurrence in the area noted in the Atlas where it is listed for 2235AB and 2235AD; also reported by DS.

135 **Wahlberg's Eagle** *Aquila wahlbergi*

Not recorded in June, but occurrence in the area noted in the Atlas where it is listed for 2235AD.

139 **Long-crested Eagle** *Lophaetus occipitalis*

Not recorded in June, but occurrence in the area noted in the Atlas where it is listed for 2235AD.

143 **Black-breasted Snake Eagle** *Circaetus gallicus*

Not recorded in June, but seen then by NJ and reported from the area earlier by JN.

148 **African Fish Eagle** *Haliaeetus vocifer*

Common in June and encountered widely across the peninsula. Inhamambane Estuary and Lake Manhale each had territorial pairs and it is likely that all there are 5-10 resident breeding pairs spread across the area. This is also one of the most 'charismatic' species of the area.

154 **Lizard Buzzard** *Kaupifalco monogrammicus*

Fairly common in June, with single birds encountered widely in msasa woodlands in the area

159 **Little Banded Goshawk** *Accipiter badius*

Not recorded in June, but reported from the area by DS.

160 **African Goshawk** *Accipiter tachiro*

Common in June and encountered daily; a bird called each morning at dawn near the Msasa Camp, and single birds were encountered widely in msasa woodlands and around mashambas.

161 **Gabar Goshawk** *Micronisus gabar*

Once recorded in June, a single adult bird perched in open msasa savanna east of Msasa Camp; the presence of this mainly thornveld-living bird was

unexpected here, being 100-200 km east of its nearest occurrence as reported in the Atlas.

163 Dark Chanting Goshawk *Melierax metabates*

Not recorded in June, but reported from the area by JN and DS and noted in the Atlas where listed for 2235AB and 2235AD.

165 African Marsh Harrier *Circus ranivorus*

Fairly common in June, with single birds encountered widely in grass- and reed-swamps in the area. Although not globally threatened, it is listed as being 'vulnerable' in South Africa.

170 Osprey *Pandion haliaetus*

Not recorded in June but reported as occurring regularly in Vilanculos Bay during summer by DS and JN.

189 Crested Francolin *Francolinus sephaena*

Not recorded in June, but reported from the area by DS and listed in the Atlas as occurring in 2235AB and 2235AD.

191 Shelley's Francolin *Francolinus shelleyi*

Not recorded in June, but occurrence in the area noted in the Atlas where it is listed for 2235AB and 2235AD.

198 Red-necked Francolin *Francolinus afer*

Common in June and found widely throughout the area, especially in cultivated lands and around mashambas.

203 Helmeted Guineafowl *Numida meleagris*

Fairly common in June and found widely in small groups (max. of 16) throughout the area.

204 Crested Guineafowl *Guttera pucherani*

Once recorded in June, a group of 15 birds in a thicket along the fence line S of Msasa Camp.

205 Kurrichane Buttonquail *Turnix sylvatica*

Once recorded in June, a single bird flushed from the ground in open grassy savanna east of Msasa Camp.

207 Wattled Crane *Grus carunculatus*

Not recorded in June, but three birds were seen in a large marsh in the Phase II area by JN in Dec 2001. The area was searched - without success - from the ground, and no Wattled Cranes were seen here from the air during a flight over the marsh. On this basis it is assumed that there is not a resident population in this area and that the birds seen were visitors from elsewhere. This species is globally-listed as 'endangered' and is the most-threatened species so far recorded from the San Sebastian peninsula.

213 Black Crake *Amaurornis flavirostris*

Twice recorded in June from sedge- and reed-marshes near the community harbour; also noted in the Atlas as occurring in 2235AB.

217 **Red-chested Flufftail** *Sarothrura rufa*

Recorded daily in June, but from only a single site - the small sedge-marsh fed by a freshwater spring that lies just to the east of Msasa Camp. At least four males were present here.

223 **Purple Gallinule** *Porphyrio porphyrio*

Not recorded in June, but occurrence in the area noted in the Atlas where it is listed for 2235AB.

226 **Moorhen** *Gallinula chloropus*

Not recorded in June, but occurrence in the area noted in the Atlas where it is listed for 2235AB.

238 **Black-bellied Korhaan** *Eupodotis melanogaster*

Twice recorded in June, single birds walking in the open msasa savanna NE of Msasa Camp. Although not globally threatened, this species is listed as 'near-threatened' in South Africa.

240 **African Jacana** *Actophilornis africanus*

Common in June, and found widely on most freshwater pans and lakes where there was a good cover of *Nymphaea*; up to 50 birds present on larger wetlands.

241 **Lesser Jacana** *Microparra capensis*

Single birds recorded in June on two small pans near Msasa Camp. I would list this as a 'charismatic' species of the wetlands on the peninsula. Although not globally threatened, this species is listed as being 'near-threatened' in South Africa.

245 **Ringed Plover** *Charadrius hiaticula*

Not recorded in June, and not listed in the Atlas as occurring on the San Sebastian peninsula; its presence here in summer is, however, almost certain as it is a common visitor to bays and estuaries in the Bazaruto Archipelago where 140+ birds were counted in the late 1990s.

246 **White-fronted Plover** *Charadrius marginatus*

Several birds (10+) were seen in June on the tidal sandbanks along the coast at Palmerinha and near the community harbour; probably common all around the San Sebastian coast.

247 **Chestnut-banded Plover** *Charadrius pallidus*

Small numbers (about 10 birds) were seen in June on tidal sandbanks along the coast at Palmerinha. Although not globally threatened, it is listed as 'near-threatened' in South Africa.

248 **Kittlitz's Plover** *Charadrius pecuarius*

Not recorded in June, and not listed in the Atlas as occurring on the San Sebastian peninsula; its presence here is, however, almost certain as it is a common visitor to bays and estuaries in the Bazaruto Archipelago.

249 Three-banded Plover *Charadrius tricollaris*

Common in June and found widely, both on the edges of freshwater pans and on tidal sandbanks along the coast.

250 Mongolian Plover *Charadrius mongolus*

Not recorded in June, and not listed in the Atlas as occurring on the San Sebastian peninsula; its presence here in summer is, however, almost certain as it is a common visitor to bays and estuaries in the Bazaruto Archipelago where up to 476 birds were counted in the late 1990s.

251 Greater Sandplover *Charadrius leschenaultii*

A single bird was seen on a sandbank at Palmerinha in June; it is a common summer visitor to bays and estuaries in the Bazaruto Archipelago where 400+ birds were counted in the late 1990s.

254 Grey Plover *Pluvialis squatarola*

Two birds were seen on a tidal sandbank along the coast at Palmerinha in June; it is a very common summer visitor to bays and estuaries in the Bazaruto Archipelago where 2000+ birds were counted in the late 1990s.

261 Long-toed Plover *Vanellus crassirostris*

Once recorded in June - a group of 5 birds on the edge of a large grass- and sedge-marsh in Phase II area; the only other report of this scarce species in southern Mozambique during the Atlas period was of two birds seen at the same site (2235AD) in 1996. This is again a 'charismatic' species of the peninsula.

262 Turnstone *Arenaria interpres*

Small numbers (about 5 birds) were seen on tidal sandbanks west of the community harbour in June; a very common summer visitor to bays and estuaries in the Bazaruto Archipelago where 2200+ birds were counted in the late 1990s.

263 Terek Sandpiper *Xenus cinereus*

Not recorded in June, and not listed in the Atlas as occurring on the San Sebastian peninsula; its presence here in summer is, however, almost certain as it is a common visitor to bays and estuaries in the Bazaruto Archipelago where 450+ birds were counted in the late 1990s.

269 Marsh Sandpiper *Tringa stagnatilis*

Not recorded in June, and not listed in the Atlas as occurring on the San Sebastian peninsula; its presence here in summer is, however, almost certain as it was a common visitor to bays and estuaries in the Bazaruto Archipelago in the late 1990s.

270 Greenshank *Tringa nebularia*

A single bird seen on a freshwater pan east of Msasa Camp in June; it is a common visitor to bays and estuaries in the Bazaruto Archipelago where 1700+ birds were counted in the late 1990s.

272 Curlew Sandpiper *Calidris ferruginea*

Small numbers (3-5) were seen on tidal sandbanks along the coast at Palmerinha in June; an abundant visitor to bays and estuaries in the Bazaruto Archipelago where 4400+ birds were counted in the late 1990s.

274 Little Stint *Calidris minuta*

Small numbers (<10) present on tidal sandbanks along the coast at Palmerinha in June; it is a common visitor to bays and estuaries in the Bazaruto Archipelago where 360+ birds were counted in the late 1990s.

281 Sanderling *Calidris alba*

Three birds seen on tidal sandbanks along the coast at Palmerinha in June; it is a very common visitor to bays and estuaries in the Bazaruto Archipelago where 2200+ birds were counted in the late 1990s.

284 Ruff *Philomachus pugnax*

Not recorded in June, but its occurrence in the area is noted in the Atlas where it is listed for 2235AD.

288 Bar-tailed Godwit *Limosa lapponica*

Not recorded in June, but its occurrence in the area is noted in the Atlas where it is listed for 2235AD; also recorded in large numbers (5500+ birds) on bays and estuaries in the Bazaruto Archipelago in the late 1990s.

290 Whimbrel *Numenius phaeopus*

Small numbers (<20 birds) present in June in the Inhamambane Estuary, and along the coast from Palmerinha to the community harbour; it is a very common summer visitor to bays and estuaries in the Bazaruto Archipelago where 2000+ birds were counted in the late 1990s.

295 Black-winged Stilt *Himantopus himantopus*

Not recorded in June, but its occurrence in the area is noted in the Atlas where it is listed for 2235AD.

296 Crab Plover *Dromas ardeola*

A single bird was seen in the mangroves at Palmerinha in June and JN reports that the birds were common at this same site in summer, with 100+ birds frequenting the area; the Bazaruto Archipelago is close to the southern limits of the range of this East African species. I would list this as a 'charismatic' species of the peninsula.

297 Spotted Dikkop *Burhinus capensis*

Not recorded in June, but reported from the area by JN.

298 Water Dikkop *Burhinus vermiculatus*

Not recorded in June and not listed from the area in the Atlas; almost certainly present on the San Sebastian peninsula, however, as it occurs commonly in the Bazaruto Archipelago.

304 Red-winged Pratincole *Glareola pratincola*

Not recorded in June, but occurrence in the area noted in the Atlas where it is listed for 2235AD. Although not globally threatened, it is listed as 'near-threatened' in South Africa.

315 Grey-headed Gull *Larus cirrocephalus*

Common in June and found widely, both on freshwater lakes and along the coast around the peninsula; the largest gathering was 12 birds on Lake Manhale.

322 Caspian Tern *Hydroprogne caspia*

Common in June, mostly encountered as single birds and both present on the larger freshwater lakes and along the coastline.

324 Swift Tern *Sterna bergii*

Not conclusively identified in June and not recorded from the San Sebastian peninsula during the Atlas surveys; almost certainly present here, however, as it is a frequent marine visitor to the Bazaruto Archipelago where 200+ birds were counted during the late 1990s.

325 Lesser Crested Tern *Sterna bengalensis*

Not conclusively identified in June and not recorded from the San Sebastian peninsula during the Atlas surveys; almost certainly present here, however, as it is an abundant marine visitor in summer to the Bazaruto Archipelago where 5000+ birds were counted during the late 1990s.

326 Sandwich Tern *Sterna sandvicensis*

Not conclusively identified in June and not recorded from the San Sebastian peninsula during the Atlas surveys; almost certainly present here, however, as it is a regular marine visitor to the Bazaruto Archipelago.

327 Common Tern *Sterna hirundo*

Not conclusively identified in June and not recorded from the San Sebastian peninsula during the Atlas surveys; almost certainly present here, however, as it is an abundant marine visitor in summer to the Bazaruto Archipelago where 20 000+ birds were counted during the late 1990s.

335 Little Tern *Sterna albifrons*

Not recorded in June, but reported from the area by JN and it is a common marine visitor in summer to the Bazaruto Archipelago where 1500+ birds were counted during the late 1990s.

338 Whiskered Tern *Chlidonias hybridus*

Commonly encountered in June, mostly as single birds, and found on many freshwater lakes and pans; the largest concentration was about 10 birds on Lake Manhale.

- 352 **Red-eyed Dove** *Streptopelia semitorquata*
Common in June and found widely in areas of taller woodland.
- 354 **Cape Turtle Dove** *Streptopelia capicola*
Very common in June and found widely in all woodland types.
- 355 **Laughing Dove** *Streptopelia senegalensis*
Not recorded in June, but occurrence in the area noted in the Atlas where it is listed for 2235AB.
- 356 **Namaqua Dove** *Oena capensis*
Not recorded in June, but occurrence in the area noted in the Atlas where it is listed for 2235AB.
- 358 **Green-spotted Dove** *Turtur chalcospilos*
Very common in June and found widely in msasa woodlands, in cultivated lands and around mashambas.
- 361 **Green Pigeon** *Treron calva*
Fairly common in June, with flocks of up to 15 birds found in several localities S and E of Msasa Camp.
- 363 **Brown-headed Parrot** *Poicephalus cryptoxanthus*
Not recorded in June, but occurrence in the area noted in the Atlas where it is listed for 2235AB and 2235AD.
- 370 **Livingstone's Lourie** *Tauraco livingstonii*
Not recorded in June, but occurrence in the area noted in the Atlas where it is listed for 2235AB.
- 371 **Purple-crested Lourie** *Tauraco porphyreolophus*
Scarce in June, with calling birds noted at a few localities S of Msasa Camp.
- 377 **Red-chested Cuckoo** *Cuculus solitarius*
Not recorded in June, but reported from the area by JN and listed in the Atlas as occurring in 2235AB and 2235AD.
- 378 **Black Cuckoo** *Cuculus clamosus*
One record of a bird calling in June close to Msasa Camp.
- 383 **Thick-billed Cuckoo** *Pachycoccyx audeberti*
Not recorded in June, but reported from the area by DS.
- 385 **Klaas's Cuckoo** *Chrysococcyx klaas*
Not recorded in June, but occurrence in the area noted in the Atlas where it is listed for 2235AD.
- 386 **Diederik Cuckoo** *Chrysococcyx caprius*

Not recorded in June, but reported from the area in summer by DS.

387 **Green Coucal** *Ceuthmochares aereus*

Not recorded in June, but reported from the area by DS.

391 **Burchell's Coucal** *Centropus burchellii*

Fairly common in June, mainly on the fringes of sedge- and reed-marshes.

392 **Barn Owl** *Tyto alba*

Not recorded in June, but reported from the area by JN.

394 **Wood Owl** *Strix woodfordii*

Twice recorded in June when single birds called briefly during the night near Msasa Camp; its occurrence in the area is also noted in the Atlas where it is listed for 2235AD.

401 **Spotted Eagle Owl** *Bubo africanus*

Common in June, with single birds and pairs encountered at several places; a pair were resident in Msasa Camp.

405 **Fiery-necked Nightjar** *Caprimulgus pectoralis*

Probably common in June but only one or two birds definitely identified as this species - these birds were not calling making identification difficult.

409 **Mozambique Nightjar** *Caprimulgus fossii*

One bird heard calling one evening near Msasa Camp in June is the only conclusive record - it is probably common, but confirmation of this is needed in summer when it is most vocal.

421 **Palm Swift** *Cypsiurus parvus*

Once recorded in June, a group circling coconut palms near Lake Manhale; its occurrence in the area has also been noted in the Atlas, and it is listed for 2235AB.

424 **Speckled Mousebird** *Colius striatus*

Once recorded in June, three birds in thicket at Palmerinha - the scarcity of this usually abundant bird in June is unaccountable. Its occurrence in the area has also been noted in the Atlas, listed for 2235AB.

426 **Red-faced Mousebird** *Urocolius indicus*

Once recorded in June (NJ).

427 **Narina Trogon** *Apaloderma narina*

Single birds seen twice in June in msasa woodland. Also one of the 'charismatic' birds of the area.

428 **Pied Kingfisher** *Ceryle rudis*

Fairly common in Jun, single birds or pairs found on freshwater lakes and pans.

- 431 **Malachite Kingfisher** *Alcedo cristata*
Common in June and found widely on most freshwater pans and lakes.
- 432 **Pygmy Kingfisher** *Isipidina picta*
Not recorded in June, but reported in summer from the area by JN.
- 434 **Mangrove Kingfisher** *Halcyon senegaloides*
Single birds seen at two sites in June (near Palmerinha and at Msasa Camp). This should be listed as one of the ‘charismatic’ species of the peninsula. Although not globally threatened, it is listed as ‘vulnerable’ in South Africa.
- 435 **Brown-hooded Kingfisher** *Halcyon albiventris*
Common in June and found widely throughout the area in all woodland types.
- 436 **Grey-hooded Kingfisher** *Halcyon leucocephala*
Not recorded in June, but reported in summer from the area by JN.
- 437 **Striped Kingfisher** *Halcyon chelicuti*
Common in June and found widely in msasa woodlands.
- 438 **European Bee-eater** *Merops apiaster*
Not recorded in June, but its occurrence in the area is noted in the Atlas where it is listed for 2235AD.
- 439 **Olive Bee-eater** *Merops superciliosus*
Once recorded in June, two birds calling in flight over mangroves at Mazerette. DS reports that there is a breeding colony of this species on the sand cliffs below Vista Mondial. This species has been recorded nesting colonially at a few other sites in the Bazaruto Archipelago (P Dutton, pers comm) and it is here at the southern-most limit of its mainly East African breeding range. This is another ‘charismatic’ species of the area.
- 441 **Carmine Bee-eater** *Merops nubicoides*
Not recorded in June, but reported from the area in summer by JN and listed in the Atlas as occurring in 2235AB and 2235AD.
- 444 **Little Bee-eater** *Merops pusillus*
Common in June and found widely in all woodland types.
- 445 **Swallow-tailed Bee-eater** *Merops hirundineus*
Not recorded in June, but reported from the area by JN and listed in the Atlas as occurring in 2235AD.
- 447 **Lilac-breasted Roller** *Coracias caudata*
Common in June and found widely throughout the area, especially on the verges of cultivated lands.
- 448 **Racket-tailed Roller** *Coracias spatulata*

A single bird seen on successive days close to Dugong Lodge in June (DG).

449 **Purple Roller** *Coracias naevia*

Fairly common in June; single birds seen mostly in the open msasa savanna E of Msasa Camp.

450 **Broad-billed Roller** *Eurystomus glaucurus*

Not recorded in June, but its occurrence in the area is noted in the Atlas where it is listed for 2235AD.

451 **African Hoopoe** *Upupa africana*

Not recorded in June, but reported from the area by JN and listed in the Atlas as occurring in 2235AB and 2235AD.

452 **Red-billed Wood Hoopoe** *Phoeniculus purpureus*

Once recorded in June, a group of 5 birds in open msasa bush near the community harbour.

454 **Greater Scimitarbill** *Rhinopomastus cyanomelas*

Scarce in June; single birds seen in msasa woodland, usually in association with mixed species bird parties.

455 **Trumpeter Hornbill** *Bycanistes bucinator*

Twice recorded in June, both of pairs of birds seen close to large boababs near Lake Manhale.

457 **Grey Hornbill** *Tockus nasutus*

Not recorded in June, but reported from the area by DS.

459 **Yellow-billed Hornbill** *Tockus leucomelas*

Not recorded in June, but reported from the area by JN.

460 **Crowned Hornbill** *Tockus alboterminatus*

Common in June and found widely, especially in areas of tall trees (baobabs, etc); up to 10 seen together.

464 **Black-collared Barbet** *Lybius torquatus*

Common in June and found widely throughout the area in all woodland types.

470 **Yellow-fronted Tinker Barbet** *Pogoniulus chrysoconus*

Scarce in June; heard calling from msasa woodland in a few places S of Msasa Camp.

471 **Golden-rumped Tinker Barbet** *Pogoniulus bilineatus*

Not recorded in June, but its occurrence in the area is noted in the Atlas where it is listed for 2235AB and 2235AD.

474 **Greater Honeyguide** *Indicator indicator*

Not recorded in June, but reported from the area by DS.

483 Golden-tailed Woodpecker *Campethera abingoni*

Once recorded in June, a bird calling in msasa woodland near the community harbour.

486 Cardinal Woodpecker *Dendropicos fuscescens*

Fairly common in June; single birds and pairs usually in mature msasa woodland and in association with mixed species bird parties.

487 Bearded Woodpecker *Thripias namaquus*

Once recorded in June, a single bird in open msasa scrub S of Msasa Camp

494 Rufous-naped Lark *Mirafra africana*

Not recorded in June, but its occurrence in the area is noted in the Atlas where it is listed for 2235AB.

505 Dusky Lark *Pinarocorys nigricans*

Not recorded in June, but its occurrence in the area is noted in the Atlas where it is listed for 2235AD.

518 European Swallow *Hirundo rustica*

Not recorded in June, but reported as being common in the area in summer by DS and JN; also listed in the Atlas as occurring in 2235AB and 2235AD.

527 Lesser Striped Swallow *Hirundo abyssinica*

Not recorded in June, but reported from the area by DS.

531 Grey-rumped Swallow *Pseudohirundo griseopyga*

Recorded at only one site in June; a pair of birds (probably the same), seen on successive days on the saline flats behind Dugong lodge.

535 Mascarene Martin *Phedina borbonica*

A single sighting was had of three birds in June; they were flying back and forth amongst the partly submerged trees at the S edge of Lake Manhale. The Atlas indicates that there are no previous records of this species from the southern Mozambique region, its nearest occurrence being from Inhaminga, S of Beira. - it was discovered here for the first time south of the Zambezi River in 1968. It is a scarce winter visitor from Malagasy to the east African coast and, on account of its rarity in southern Africa, it is potentially one of the icon birds for the San Sebastian peninsula.

536 Black Saw-wing Swallow *Psolidoprocne holomelas*

Common in June and found widely throughout the area; small groups (2-6 birds) often associated with freshwater pans and lakes.

538 Black Cuckoo-shrike *Campephaga flava*

Fairly common in June; single birds encountered widely in tree canopies in mature msasa woodland, usually in association with mixed species bird parties.

541 Fork-tailed Drongo *Dicrurus adsimilis*

Very common in June and found widely in single and pairs, especially around the edges of cultivated lands.

542 Square-tailed Drongo *Dicrurus ludwigii*

Not recorded in June, but its occurrence in the area is noted in the Atlas where it is listed for 2235AB and 2235AD.

545 Black-headed Oriole *Oriolus larvatus*

Fairly common in June; mainly in mature msasa woodland.

548 Pied Crow *Corvus albus*

Common in June and found widely throughout the area, especially in association with human settlements. Several inactive nests located.

554 Southern Black Tit *Parus niger*

Common in June and found widely in mature msasa woodland, usually in small groups feeding alongside other species parties in tree canopies.

558 Grey Penduline Tit *Anthoscopus caroli*

Once recorded in June, a pair associated with a mixed species bird flock in msasa trees in Msasa Camp.

560 Arrow-marked Babbler *Turdoides jardineii*

Once recorded in June, a flock of birds in a msasa thicket 7 km S of Msasa Camp.

568 Black-eyed Bulbul *Pycnonotus barbatus*

Very common in June and found widely in all woodland types; probably the single most frequently encountered bird in the area.

569 Terrestrial Bulbul *Phyllastrephus terrestris*

Not recorded in June, but its occurrence in the area is noted in the Atlas where it is listed for 2235AB.

572 Sombre Bulbul *Andropadus importunus*

Very common in June and found widely in all woodland types throughout the area.

574 Yellow-bellied Bulbul *Chlorocichla flaviventris*

Fairly common in June; found in dense thickets throughout the area.

575 Yellow-spotted Nicator *Nicator gularis*

Once recorded in June, a single bird crossed the road in a msasa thicket S of Msasa Camp. Being silent in winter makes this species relatively undetectable at this time of the year; it is probably common, since it is

listed in the Atlas for both 2235AB and 2235AD, and it was reported by JN and DS.

576 Kurrichane Thrush *Turdus libonyana*

Once recorded in June and unaccountably scarce, with a single bird found in msasa woodland close to the community harbour.

600 Natal Robin *Cossypha natalensis*

Once recorded in June, a bird calling in thickets close to the seafront at Palmerinha.

613 White-browed Scrub Robin *Erythropygia leucophrys*

Fairly common in June; found singly in most woodland types.

631 African Marsh Warbler *Acrocephalus baeticatus*

Once recorded in June, a single bird called up from a reedbed on pan close to Msasa Camp.

635 Cape Reed Warbler *Acrocephalus gracilirostris*

Fairly common in June; detected by its call; found in reed-marshes, including the one just east of Msasa Camp.

638 African Sedge Warbler *Bradypterus baboecala*

Fairly common in June; detected by its call, and found in dense sedge-marshes, mostly along the Inhamambane estuary.

648 Yellow-breasted Apalis *Apalis flavida*

Common in June and found widely throughout the areas in areas of thicket. One active nest was located at Palmerinha.

650 Red-faced Crombec *Sylvietta whytii*

Common in June and found widely in msasa woodlands, usually in association with mixed species bird parties.

651 Long-billed Crombec *Sylvietta rufescens*

Once recorded in June, a pair of birds associated with a mixed bird party (of batises, tits and others) in msasa woodland in Phase II area.

655 Green-capped Eremomela *Eremomela scotops*

Twice recorded in June; both were of small groups (3-4 birds) found foraging in tree canopies in association with other species (batises, tits, etc) in mixed bird parties. There are only two records of this species in the Mozambique bird atlas, both from 200-300 km west on the Zimbabwe border.

657 Green-backed Bleating Warbler *Cameroptera brachyura*

Common in June and found widely in the area in dense thickets.

664 Fan-tailed Cisticola *Cisticola juncidis*

Common in June and found widely in ones and twos along the grassy margins of freshwater wetlands; also in cultivated lands.

672 **Rattling Cisticola** *Cisticola chiniana*

Common in June and found widely in all woodland types.

675 **Black-backed Cisticola** *Cisticola galactotes*

Fairly common in June; found in pairs on the margins of sedge- and grass-marshes.

678 **Croaking Cisticola** *Cisticola natalensis*

Not recorded in June, but occurrence in the area noted in the Atlas where it is listed for 2235AD.

681 **Neddicky** *Cisticola fulvicapilla*

Only once recorded in June, but probably overlooked at other times; in open msasa savanna NE of Msasa Camp.

683 **Tawny-flanked Prinia** *Prinia subflava*

Not recorded in June, but reported from the area by DS and listed in the Atlas as occurring in 2235AB and 2235AD.

693 **Fan-tailed Flycatcher** *Myioparus plumbeus*

Scarce in June, with single birds recorded a few times in mature msasa woodland in mixed species bird parties.

694 **Black Flycatcher** *Melaenornis pammelaina*

Common in June and found widely in most woodland types; singly or in pairs.

696 **Pallid Flycatcher** *Melaenornis pallidus*

Common in June and found widely; mostly in pairs and mainly in the open msasa savanna east of Msasa Camp.

702 **Mozambique Batis** *Batis soror*

Very common in June and found widely in all woodland types, often in association with other birds in mixed bird parties.

705 **Wattle-eyed Flycatcher** *Platysteira peltata*

A pair recorded only once in June in mangroves at Palmerinha. Although not globally threatened, it is listed as 'near-threatened' in South Africa.

710 **Paradise Flycatcher** *Terpsiphone viridis*

Fairly common in June; single birds encountered in areas of mature msasa woodland, usually in association with mixed species bird parties.

716 **Grassveld Pipit** *Anthus cinnamomeus*

Fairly common in June, with single birds found on areas of open, bare ground, usually along the margins of drying-out pans.

728 **Yellow-throated Longclaw** *Macronyx croceus*

Scarce, with pairs recorded along the grassy margins of freshwater wetlands S and E of Msasa Camp.

733 **Red-backed Shrike** *Lanius collurio*

Not recorded in June, but reported from the area in summer by JN and listed in the Atlas as occurring in 2235AB and 2235AD.

736 **Southern Boubou** *Laniarius ferrugineus*

Common in June and found widely throughout the area in thickets.

740 **Puffback** *Dryoscopus cubla*

Common in June and found widely, especially in mature msasa woodland; found singly or in pairs, often in association with mixed species bird parties in tree canopies.

741 **Brubru Shrike** *Nilaus afer*

Fairly common in June; mostly in areas of mature msasa woodland, found singly or in pairs in association with mixed species bird parties in tree canopies.

743 **Three-streaked Tchagra** *Tchagra australis*

Fairly common in June and found widely in all woodland types.

744 **Black-crowned Tchagra** *Tchagra senegala*

Common in June and found widely in all woodland types.

747 **Gorgeous Bush Shrike** *Telophorus quadricolor*

Twice recorded in June; a single bird and a pair in dense thickets south of Msasa Camp; in contrast to summer it is not easily detected in winter when mostly silent; also listed in the Atlas as occurring in 2235AB and 2235AD; another 'charismatic' species of the area.

751 **Grey-headed Bush Shrike** *Malaconotus blanchoti*

Scarce in June; recorded most frequently in msasa woodland the vicinity of Msasa Camp.

753 **White Helmet Shrike** *Prionops plumatus*

Common in June and found widely in groups of 5-10 birds; in all woodland types.

754 **Red-billed Helmet Shrike** *Prionops retzii*

Not recorded in June, but reported from the area by DS.

755 **Chestnut-fronted Helmet Shrike** *Prionops scopifrons*

Not recorded in June, but its occurrence in the area is noted in the Atlas where it is listed for 2235AD. The Atlas comments that this species is 'threatened' in southern Mozambique as a result of the clearance by man of primary woodland along the coast.

761 **Plum-coloured Starling** *Cinnyricinclus leucogaster*
Not recorded in June, but reported from the area in summer by DS and JN.

768 **Black-bellied Starling** *Lamprotornis corruscus*
Scarce in June, with a flock of 20+ birds seen over marsh in Phase II area and another small party flying over open woodland near the community harbour.

780 **Purple-banded Sunbird** *Nectarinia bifasciata*
Common in June and found widely in all woodland types.

782 **Neergaard's Sunbird** *Nectarinia neergaardi*
Not recorded in June, but its occurrence in the area is noted in the Atlas where it is listed for 2235AD. Listed as 'near-threatened', both globally and in South Africa.

789 **Grey Sunbird** *Nectarinia veroxii*
Single birds seen twice in June; found in thickets between Msasa Camp and the community harbour.

790 **Olive Sunbird** *Nectarinia olivacea*
Not recorded in June, but its occurrence in the area is noted in the Atlas where it is listed for 2235AB.

791 **Scarlet-chested Sunbird** *Nectarinia senegalensis*
Common in June and found widely in all woodland types.

792 **Black Sunbird** *Nectarinia amethystina*
Not recorded in June, but its occurrence in the area is noted in the Atlas where it is listed for 2235AB and 2235AD; also reported by DS and JN.

793 **Collared Sunbird** *Anthreptes collaris*
Fairly common in June, found mainly in thickets and in better-wooded stands of msasa.

797 **Yellow White-eye** *Zosterops senegalensis*
Not recorded in June, but reported from the area by DS.

801 **House Sparrow** *Passer domesticus*
Not recorded in June, but reported from the area by DS.

804 **Grey-headed Sparrow** *Passer diffusus*
Scarce in June; small parties seen in cultivated lands.

805 **Yellow-throated Sparrow** *Petronia superciliaris*
Scarce in June with single birds seen a few times in the open msasa savanna east of Msasa Camp.

807 **Thick-billed Weaver** *Ambylospiza albifrons*

Not recorded in June, but reported from the area by DS and listed in the Atlas as occurring in 2235AB.

808 Forest Weaver *Ploceus bicolor*

Not recorded in June, but its occurrence in the area is noted in the Atlas where it is listed for 2235AB and 2235AD.

810 Spectacled Weaver *Ploceus ocularis*

Fairly common in June; solitary or in pairs, in better-wooded stands of msasa and in thickets.

811 Spotted-backed Weaver *Ploceus cucullatus*

Once recorded in June, and probably overlooked at other times because of being in winter plumage; in association with other weavers and widows feeding in cultivated lands.

814 Masked Weaver *Ploceus velatus*

Fairly common in June, usually alongside other weavers and widows in flocks in cultivated lands.

815 Lesser Masked Weaver *Ploceus intermedius*

Not recorded in June, but reported from the area by DS.

817 Yellow Weaver *Ploceus subaureus*

Twice seen in June, in flocks with widows and other weaver spp., in cultivated lands S of Msasa Camp.

819 Red-headed Weaver *Anaplectes rubriceps*

Not recorded in June, but reported from the area by DS.

821 Red-billed Quelea *Quelea quelea*

Not recorded in June, but its occurrence in the area is noted in the Atlas where it is listed for 2235AB.

828 Red-shouldered Widow *Euplectes axillaris*

Fairly common in June; in flocks of 20-50 birds, often associated with flocks of weavers; usually in cultivated lands.

829 White-winged Widow *Euplectes albonotatus*

Once recorded in June, a flock of birds in winter plumage were associating with Red-shouldered Widows in cultivated lands.

844 Blue Waxbill *Uraeginthus angolensis*

Not recorded by me in June, but seen then by NJ and its occurrence in the area is noted in the Atlas where it is listed for 2235AB.

846 Common Waxbill *Estrilda astrild*

Common in June and found widely in small parties, mostly in cultivated lands or alongside sedge-marshes.

857 **Bronze Mannikin** *Spermestes cucullatus*

Very common in June and flocks were found widely, mostly in association with cultivated lands.

858 **Red-backed Mannikin** *Spermestes bicolor*

Twice recorded in June, both times in mixed flocks alongside Bronze Mannikins in cultivated lands.

860 **Pin-tailed Whydah** *Vidua macroura*

Once recorded in June, a flock of 80 birds in winter plumage feeding in disturbed ground alongside a mashamba.

862 **Paradise Whydah** *Vidua paradisaea*

Not recorded in June, but its occurrence in the area is noted in the Atlas where it is listed for 2235AB.

869 **Yellow-eyed Canary** *Serinus mozambicus*

Scarce in June, with small parties recorded in cultivated lands S of Msasa Camp.

871 **Lemon-breasted Canary** *Serinus citrinipectus*

Fairly common in June and flocks of 20-30 birds were seen at two localities; dependent on mature *Hyphaene* (Lala) palms for nesting. It is near-endemic to the Mozambique coastal plain and is one of the most recent 'new' bird species to have been discovered in southern Africa, the type specimen having been collected near Inhambane in 1960 - given these factors and its attractive appearance it is clearly one of the area's 'charismatic' species. Although not globally threatened, it is listed as being 'near-threatened' in South Africa.

877 **Bully Canary** *Serinus sulphuratus*

Not recorded in June, but reported from the area by DS.

884 **Golden-breasted Bunting** *Emberiza flaviventris*

Scarce in June, with single birds recorded twice in open msasa savanna east of Msasa Camp.

ANNEX 3.2: THREATENED AND POTENTIALLY THREATENED BIRD SPECIES IN THE VILANCULOS COASTAL WILDLIFE SANCTUARY

There is no formal Red Data list of the birds of Mozambique but in 'The Atlas of Birds of Southern Mozambique' (Vincent 1999) there is a list of 32 species that the author considers to be 'locally threatened' in southern Mozambique. There are also several Mozambique species included in the international list of

threatened bird species (Collar et al 1994 *Birds to watch - The world list of threatened birds*), and there is also a recently-revised list for South Africa of threatened species (Barnes, ed, 2000 *The Eskom Red Data book of birds of South Africa, Lesotho and Swaziland*). Together, these assessments provide a basis for evaluating the relative conservation importance of the avifauna of the Sanctuary and assessing to what extent this sanctuary can play a role in conserving populations of rare or threatened species. Note that the terminology used in defining the threatened status of a species is ranked in diminishing order of threat as follows: CRITICAL, ENDANGERED, THREATENED, NEAR-THREATENED and VULNERABLE. Threatened and potentially threatened bird species are listed below in taxonomic order.

White Pelican *Pelecanus onocrotalus*. Not globally threatened, and not regarded as locally threatened in southern Mozambique, but listed as ‘near-threatened’ in South Africa.

Pink-backed Pelican *Pelecanus rufescens*. Not globally threatened, and not regarded as locally threatened in southern Mozambique, but listed as ‘vulnerable’ in South Africa.

Woolly-necked Stork *Ciconia episcopus*. Not globally threatened, and not regarded as locally threatened in southern Mozambique, but listed as ‘near-threatened’ in South Africa.

Open-billed Stork *Anastomus lamelligerus*. Not globally threatened, and not regarded as locally threatened in southern Mozambique, but listed as ‘near-threatened’ in South Africa.

Saddle-billed Stork *Ephippiorhynchus senegalensis*. Not globally threatened, but is listed as being ‘locally threatened’ in southern Mozambique and as ‘endangered’ in South Africa. In this context, the San Sebastian population is important.

Yellow-billed Stork *Mycteria ibis*. Not globally threatened, and not regarded as locally threatened in southern Mozambique, but listed as ‘near-threatened’ in South Africa.

Greater Flamingo *Phoenicopterus ruber*. Not globally threatened, and not regarded as locally threatened in southern Mozambique, but listed as ‘near-threatened’ in South Africa.

Pygmy Goose *Nettapus auritus*. Not globally threatened, and not regarded as locally threatened in southern Mozambique, but listed as ‘near-threatened’ in South Africa.

African Marsh Harrier *Circus ranivorus*. Not globally threatened, and not regarded as locally threatened in southern Mozambique, but listed as ‘vulnerable’ in South Africa.

Wattled Crane *Grus carunculatus*. Listed as ‘endangered’ globally and as ‘critical’ in South Africa. It is the most-threatened species thus far recorded from the San Sebastian peninsula.

Black-bellied Korhaan *Eupodotis melanogaster*. Not globally threatened, and not regarded as locally threatened in southern Mozambique, but listed as ‘near-threatened’ in South Africa.

Lesser Jacana *Microparra capensis*. Not globally threatened, but listed as ‘locally threatened’ in southern Mozambique and as ‘near-threatened’ in South Africa.

Chestnut-banded Plover *Charadrius pallidus*. Not globally threatened, and not regarded as locally threatened in southern Mozambique, but listed as ‘near-threatened’ in South Africa.

Red-winged Pratincole *Glareola pratincola*. Not globally threatened, and not regarded as locally threatened in southern Mozambique, but listed as ‘near-threatened’ in South Africa.

Caspian Tern *Hydroprogne caspia*. Not globally threatened, and not regarded as locally threatened in southern Mozambique, but listed as ‘near-threatened’ in South Africa.

Mangrove Kingfisher *Halcyon senegaloides*. Not globally threatened, but regarded as ‘locally threatened’ in southern Mozambique, and as ‘vulnerable’ in South Africa.

Chestnut-fronted Helmet Shrike *Prionops scopifrons*. Not globally threatened, but regarded as ‘locally threatened’ in southern Mozambique; does not occur in South Africa.

Neergaard's Sunbird *Nectarinia neergaardi*. Listed as ‘near-threatened’ globally and as ‘near-threatened’ in South Africa and southern Mozambique.

Lemon-breasted Canary *Serinus citrinipectus*. Not globally threatened, and not regarded as locally threatened in southern Mozambique, but listed as ‘near-threatened’ in South Africa.

ANNEX 4: ANNOTATED SPECIES LIST OF REPTILES OF VILANCULOS COASTAL WILDLIFE SANCTUARY

CHELONIA

Order Testudines

Suborder Cryptodira

Family **Testudinidae**

KINIXYS Bell

b. belliana Gray. Bell's hinged tortoise. A woodland and coastal forest species which has been recorded on the sanctuary (DS). It appears to be very rare on the reserve and requires confirmation..

Family **Dermochelyidae**

DERMOCHELYS Blainville

coriacea (Vandelli) Leatherback turtle. The largest of the turtles which occur along the Mozambique coast, the Leatherback turtle has been recorded from Bazaruto Island. It is uncommon but could be sighted off the peninsula.

Family **Cheloniidae**

CHELONIA Brongniart

mydas (L.) Green turtle. Probably the commonest marine turtle in the seas around the peninsula. The species is herbivorous feeding mostly on algae and "sea grasses" which occur abundantly in the area. The species is known to be eaten by the local fishermen as shells and skeletal remains have been found around human habitation in the sanctuary. Has been recorded from the Bazaruto National Park (Broadley)

ERETMOCHELYS Fitzinger

imbricata (L.) Hawksbill turtle. Has been recorded around Bazaruto Island but appears to be uncommon. Feeds mostly on sponges but also include marine plants, shellfish and crabs in their diet.

LEPIDOCHELYS

olivaceus Escholtz. Olive ridley turtle. An uncommon turtle which has as yet not been recorded from the Bazaruto Archipelago but is likely to be recorded in time. Feeds mostly on crabs and prawns.

CARETTA Rafinesque

caretta L. Loggerhead turtle. A large turtle which has been recorded off Bazaruto Island and is likely to occur off the peninsula. Feeds on floating animals such as bluebottles and storm snails.

Suborder Pleurodira

Family **Pelomedusidae**

PELUSIOS Wagler

s. subniger (Lacepede). Pan hinged terrapin. The tracks of a terrapin crossing the

road between two pans close to Jacana camp are likely to belong to this species which has also been recorded from the Bazaruto National Park (Broadley 1992). *c. castanoides* Hewitt. Yellow-bellied hinged terrapin. Broadley (1992) provisionally listed this species as occurring on Bazaruto Island. It is therefore also likely to occur in the sanctuary.

Order SQUAMATA

Suborder: Serpentes

Family Typhlopidae

TYPHLOPS Oppel

fornasinii Bianconi. Fornasini's blind snake. Not as yet recorded from the sanctuary, the species has been listed as occurring in the Bazaruto National Park (Broadley 1990,1992).

Family Leptotyphlopidae

LEPTOTYPHLOPS Fitzinger

incognitus Broadley & Watson. Eastern thread snake. As yet unrecorded from the peninsula the species has been recorded from Benguera Island (Broadley 1992) and is likely to occur on the reserve.

Family Atractaspididae

TRACTASPIS A. Smith

bibronii A. Smith. Bibron's burrowing asp. An uncommon burrowing snake which has been recorded in the vicinity of Msasa camp (DS.) The species has also been recorded from the Bazaruto National Park (Broadley 1990,1992).

APARALLACTUS A. Smith

capensis (A. Smith). Cape centipede-eater. This small snake has been recorded from Bazaruto Island but not as yet from the sanctuary.

AMBLYODIPSAS Peters

m. microphthalma (Bianconi). White-lipped snake. This rare burrowing snake has not as yet been recorded from the sanctuary but has been found on Bazaruto Island (Broadley 1990,1992).

XENOCALAMUS Gunther

bicolor lineatus Roux. Bicoloured quill-snouted snake. This uncommon fossorial snake was recorded by Broadley (1992) from Bazaruto Island. As yet it is unrecorded from the peninsula but is likely to occur.

transvaalensis Methuen. Transvaal quill-snouted snake. A very rare snake the species is likely to occur in the sanctuary having been recorded by Broadley (1990) from Bazaruto Island.

Family Boidae

PYTHON Gmelin

natalensis A. Smith. Southern python. A large snake which has been recorded from the northern part of the reserve. Appears to inhabit areas around pans, spoor being seen of snakes entering and emerging from the water. Has also been recorded from the Bazaruto Archipelago (Broadley 1990).

Family Colubridae

LAMPROPHIS Fitzinger

fuliginosus Boie .Brown house snake . A brown nocturnal snake which has been recorded from the sanctuary around Jane marsh during this survey and in the north by DS.

LYCOPHIDION Fitzinger

s. semiannule Peters. Eastern wolf snake. Not yet recorded from the sanctuary but has been found on Benguera Island (Broadley 1992).

PROSYMNA Gray

jani Bianconi.. Mozambique shovel-snout . Another fossorial snake mainly found in dune thicket. Has not been recorded from the sanctuary but has been found on Bazaruto and Benguera Islands (Broadley 1992).

stuhlmannii (Pfeffer). East African shovel-snout. The species has been recorded from Bazaruto Island (Broadley 1992) and is expected to occur on the peninsula.

PSAMMOPHIS Boie

subtaeniatus orientalis Broadley . Stripe-bellied sand snake . As yet only recorded from the Bazaruto National Park (Broadley op cit.), it is likely that the species will occur along the peninsula.

PHILOTHAMNUS A. Smith

semivariiegatus (A. Smith). Spotted bush snake A common snake in miombo woodland; commonly recorded around Msasa camp. A beautiful and harmless snake it often forages around buildings lying on beams and in the roofs of huts seeking lizards and frogs which are its main diet. Has also been recorded from the Bazaruto National Park (Broadley 1992).

hoplogaster (Gunther). Green water snake . Widespread in the sanctuary occurring close to water.

n. natalensis (A. Smith). Eastern green snake. Has been recorded from near Jane marsh but appears to be uncommon. Broadley (1992) recorded the species from the Bazaruto Island.

DASYPELTIS Wagler

m. medici Bianconi. East African egg-eater. Not recorded from the sanctuary but is expected to occur as it has been found in the Bazaruto National Park (Broadley 1990, 1992).

CROTAPHOPELTIS Fitzinger

hotamboeia (Laurenti). Herald snake . A nocturnal snake recorded from miombo woodland in the vicinity of Jane marsh. Has also been recorded from Bazaruto Island (Broadley 1992).

DIPSADOBOA Gunther

aulica Gunther. Marbled tree snake. Recorded from Benguera Island (Broadley 1992) but not yet from the peninsula.

DISPHOLIDUS Duvernoy

typus (A. Smith). Boomslang. As yet has only been recorded from Bazaruto Island (Broadley 1990). It is expected to occur in the sanctuary.

THELOTORNIS A. Smith

capensis mossambicana Broadley. Vine snake A very attractive and highly unusual snake recorded in the sanctuary (DS). It has the habit of lying motionless for lengthy periods extended from a branch, with only the red and black tongue flickering. It feeds mostly on lizards and amphibians. The species is back-fanged and poisonous.

Has also been recorded from the Bazaruto National Park (Broadley 1990)

Family **Elapidae**

ASPIDELAPS A. Smith

scutatus fulafula Broadley. Shield-nose snake . An uncommon and very unusual snake with a large nasal shield which the snake uses to dig burrows in the sand. The snake is fossorial and poisonous. Has been recorded from the sanctuary (DS).

NAJA Laurenti

annulifera Peters. Snouted cobra. A large snake recorded from the sanctuary in miombo woodland (JN).

melanoleuca Hallowell. Forest cobra. A rare snake recorded from dune thicket and mangroves at the northern tip of the peninsula. Has also been listed as occurring on Bazaruto Island (Broadley 1990, 1992)

mossambica Peters. Mozambique spitting cobra. Has been recorded from the sanctuary (DS).

DENDROASPIS Schlegel

polylepis (Gunther). Black mamba . A large poisonous snake recorded from the southern part of the peninsula in less settled areas. Has also been observed south of the sanctuary in closed canopy miombo woodland.

Suborder Amphisbaenia

Family **Amphisbaenidae**

ZYGASPIS Cope

longicauda Broadley. Long-tailed round-headed worm lizard. A recently described species only known to date from a single specimen from Bazaruto Island (Broadley 1990). It is rare and appears to be confined to bushclumps in miombo woodland and dune thicket on the peninsula.

MONOPELTIS A. Smith

s. sphenorhynchus Peters. Slender spade-snouted worm lizard . The Slender spade-snouted worm-lizard has been recorded from Bazaruto Island (Broadley 1992) and is likely to occur in the sanctuary.

Suborder Sauria

Family **Scincidae**

TYPHLOSAURUS Wiegmann

aurantiacus ssp. *bazarutoensis* Broadley. Golden blind legless skink. An uncommon, fossorial legless lizard living in leaf litter in bushclumps in miombo woodland and dune thicket. Broadley (1990) described two subspecies *T. a. bazarutoensis* and *T. a. carolinensis* endemic to islands in the Archipelago, one of which also occurs on the peninsula.

SCELOTES Fitzinger

insularis Broadley. Bazaruto dwarf burrowing skink A small burrowing skink only recorded from dune scrub and thicket in the north. Originally described from Bazaruto Island where it was thought to be endemic (Broadley 1990). A rare and localised species.

LYGOSOMA Hardwick & Gray

lanceolatum Broadley. Bazaruto writhing skink. A rare burrowing skink described initially from the islands of the Bazaruto Archipelago (Broadley 1990). In the sanctuary this skink has only been recorded from dune thicket at the northern end of the peninsula.

sundevallii (A. Smith). Sundevall's writhing skink. A widely distributed burrowing skink recorded from miombo woodland within the sanctuary. This represents a new distribution record for the species which was believed to be separated from the coast by another species the Mozambique writhing skink *L. afer*.

MABUYA

depressa Peters. Eastern coastal skink. Recorded mainly from the coastal dunes flanking the estuary where it inhabits areas of dune scrub. A sand diving lizard it buries itself in the sand when disturbed. Has also been recorded from the Bazaruto National Park (Broadley 1990,1992).

varia (Peters). Variable skink. The most common skink in the sanctuary, it occurs mostly in miombo woodland often around the base of trees and dead wood on the ground. Forages out from place of refuge. Has also been recorded from the Bazaruto National Park (Broadley 1990)

s. striata (Peters). Striped skink. This lizard has only been recorded from dune thicket at the northern end of the peninsula living on dead wood which provides a refuge. Has also been recorded from Santa Carolina Island (Broadley 1990).

PANASPIS Cope

wahlbergi (A. Smith). Wahlberg's snake-eyed skink. A small semi-fossorial skink usually foraging among leaf litter it was recorded from open miombo woodland near Jacana camp. Has also been recorded from the islands of Bazaruto and Benguera (Broadley 1990). The ventral male breeding colour from the peninsula differed from that recorded for the islands, being typically pinkish orange throughout, whereas the latter were white under the throat and chest.

Family Lacertidae

ICHNOTROPIS Peters

capensis (A. Smith). Cape rough-scaled lizard. A terrestrial lizard which has been recorded from the sanctuary in open miombo woodland. This lizard only lives for a year with few adults reaching 15 months. This record extends the distribution of the species across the Mozambique plain.

squamulosa Peters. Large rough-scaled lizard. A lizard which could be this species was seen in the north of the peninsula in open miombo woodland. Like the previous species this lizard also exhibits an annual lifecycle being mostly adult while the former species occurs as juveniles and vice versa. This record requires confirmation.

NUCRAS Gray

caesicaudata Broadley. Blue-tailed sandveld lizard. An uncommon species recorded from miombo woodland near Jacana camp. Rare, this record represents a range extension of this terrestrial species to the coast.

Family Gerrhosauridae

GERRHOSAURUS Wiegmann

major Dumeril. Rough-scaled plated lizard. A large terrestrial lizard which normally takes refuge in holes has been recorded from the island of Bazaruto (Broadley 1990) but has not yet been recorded from the sanctuary.

flavigularis Wiegmann. Yellow-throated plated lizard . Another terrestrial lizard recorded from the Archipelago (Broadley 1990) but has not yet been found on the peninsula.

Family **Varanidae**

VARANUS Merrem

albigularis (Daudin). Veld monitor. Recorded being seen in the sanctuary by DS. Also recorded from the Bazaruto National Park (Broadley 1990).

niloticus (Linnaeus). Water monitor. Widespread and common around wetlands in miombo woodland. Five individuals were seen at one pan close to Msasa camp.

Family **Chamaeleontidae**

CHAMAELEO Laurenti

dilepis Leach. Flap-necked chameleon. The common Flap-necked chameleon has been recorded on the peninsula (DS) and has also been found on Benguera Island (Broadley 1990).

Family **Agamidae**

AGAMA Daudin

armata Peters. Peter's spiny agama. A male was recorded along the ecotone between the dune thicket and upper littoral zone along the estuary. Another individual was recorded from the airstrip by EP. Appears to be most common in dune scrub.

Family **Gekkonidae**

HOMOPHOLIS Boulenger

wahlbergii (A. Smith). Velvety gecko. A single individual has been recorded from the island of Bazaruto (Broadley 1992).

HEMIDACTYLUS Oken

mabouia Moreau de Jonnes. Tropical house gecko. An individual was recorded at Msasa camp inhabiting the dining room roof but the species is widespread frequenting large *Balanites*, fig and Baobab trees, sometimes together with next species. Has also been recorded from the Bazaruto National Park (Broadley 1990)

platycephalus Peters. Flat-headed house gecko. A large gecko recorded from the eastern side of the peninsula and "Baobab valley" where individuals were found under a loose piece of bark on a *Balanites* tree and on the boles of large fig and Baobab trees. Has also been recorded from the Bazaruto National Park (Broadley 1990, 1992), where it appeared to be extending its range.

LYGODACTYLUS Gray

capensis A. Smith. Cape dwarf gecko. A common dwarf gecko found on tree trunks and dead wood throughout the sanctuary. Has also been recorded from the Bazaruto National Park (Broadley 1990, 1992).

Order Crocodylia

Family **Crocodylidae**

CROCODYLUS Laurenti

niloticus Laurenti. Nile crocodile . Appears to be rare in the sanctuary with only two confirmed records from a pan in the vicinity of Jacana camp (JN), one of which was subsequently seen at Msasa camp and the other in a pan adjacent to the workshop pan. Has also been recorded from the islands of Bazaruto and Benguera inhabiting freshwater pans and lakes (Broadley 1990).

Records by Dave Smart (DS), Jenny Newenham (JN), Errol Pietersen (EP)

ANNEX 5: ANNOTATED SPECIES LIST OF THE AMPHIBIANS OF THE VILANCULOS COASTAL WILDLIFE SANCTUARY.

AMPHIBIA

Family **Bufonidae**

BUFO Laurenti

garmani Meek Garman's toad. The commonest toad on the peninsula occurring around Msasa camp, feeding on insects attracted to the light in the evenings. They were heard calling extensively during June around pans at Jacana camp. The males from the sanctuary do not exhibit the clear cut markings normally associated with this species. A vertebral stripe is also frequently present differing from typical material.

gutturalis Power. Gutteral toad. An uncommon toad in the sanctuary having only been recorded calling during September in the vicinity of Jane marsh. Appears to be absent from the northern parts.

Family **Hyperoliidae**

AFRIXALUS Laurent

fornasini Bianconi Fornasini's spiny reed frog. Recorded from Jacana camp by J. Newenham (photographic record). Likely to be active during the summer months.

HYPEROLIUS Rapp

m. marmoratus Rapp Marbled reed frog. A rare reed frog on the peninsula having been recorded by J. Newenham from Jacana camp (photographic record). It seems that the sanctuary lies on a transition zone between the two subspecies with a resultant mixing of colour patterns.

m. taeniatus Peters Marbled reed frog. The commonest reed frog occurring around most pans and wetlands in the sanctuary. Has the ability to change colour according to insolation, becoming white during the day. Also recorded from the Bazaruto National Park (Broadley 1990).

pusillus (Cope) Waterlily reed frog. A green frog recorded from dune scrub along the estuary. Has also been recorded from Bazaruto National Park (Downs & Wirminghaus 1990)

tuberilinguis Smith. Tinker reed frog. A common reed frog recorded from pans and marshes around Msasa and Jacana camps and in the vicinity of Jane marsh calling from vegetation in the water. Also recorded from Bazaruto National Park (Broadley 1990)

KASSINA Girard

maculata (Dumeril) Red-legged kassina A common kassina around vegetated pans usually heard calling from emergent vegetation in the middle of the pan.

senegalensis (Dum. & Bibr.) Bubbling kassina. Recorded from the Bazaruto National park (Broadley 1990). As yet unconfirmed from the sanctuary.

LEPTOPELIS Gunther

mossambicus Poynton. Brown-backed tree frog. Only heard calling from the vicinity of Jane marsh during September. Also recorded from the Bazaruto National park (Broadley 1990).

natalensis (Smith). Forest tree frog. A metamorphosing tadpole belonging to this species was collected in Jane marsh during September at the same time that the Brown-backed tree frog was heard calling. This represents a substantial range

extension for the species.

Family **Microhylidae**

PHRYNOMANTIS Peters

bifasciatus (Smith). Banded rubber frog. Recorded from Bazaruto National Park (Broadley 1990). Has as yet not been recorded from the Vilanculos coastal wildlife sanctuary.

Family **Pipidae**

XENOPUS Wagler

muelleri (Peters). Mullers platanna. Has been recorded from pans in the vicinity of Msasa camp during September and is likely to be widespread along the peninsula.

Family **Ranidae**

PHRYNOBATRACHUS Gunther

acridoides (Cope). Eastern puddle frog. Occurs throughout the peninsula wherever suitable pools of permanent water are found. It occurs among vegetation at the waters edge. Also heard calling during September.

mababiensis FitzSimons. Dwarf puddle frog. The smallest of the frogs occurring in the sanctuary, it seems to be widespread at suitable waterbodies but is less common than the former species. It has also been found in the Bazaruto National Park (Broadley 1990,1992)

PTYCHADENA Boulenger

mossambica (Peters). Broad-banded grass frog. This frog has been found in marshes along the east and south of the sanctuary. Has also been recorded from the Bazaruto National Park (Broadley 1990).

oxyrhynchus (Smith). Sharpnosed grass frog. The species has been recorded from the ecotone between the salt marsh and fresh water seep below Msasa camp. Frogs were heard calling in September.

TOMOPTERNA Dumeril & Bibron

krugerensis Passmore & Carruthers. Knocking sand frog. Although the species has not yet been recorded from the sanctuary, it has been recorded from the Bazaruto National Park (Broadley 1990,1992).